

# SD Times

SOFTWARE DEVELOPMENT

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## STUDY SHOWS DEVELOPMENT MANAGERS BULLISH ON LINUX

Operating system at home in Web, app servers

BY ALAN ZEICHICK

Nearly a quarter of development managers consider themselves committed to using Linux at their workplace, and roughly another third call themselves pro-Linux. However, their companies are somewhat less enthusiastic about the

open-source operating system. That's according to a new study by BZ Research, a subsidiary of BZ Media LLC (www.bzmedia.com), publisher of SD Times.

The study showed that 23 percent of development man-

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## TeamShare Acquisition Moves Serena Into Process

Strategy behind \$18 million purchase is to 'manage change where it occurs'

BY DAVID RUBINSTEIN

Looking to extend its enterprise change management vision beyond application development, Serena Software Inc. late last month acquired TeamShare Inc. for US\$18 million in cash.

Serena, whose ChangeMan family of tools addresses mainframe and distributed systems issues, plans on making TeamShare's TeamTrack defect-tracking tool a central part of its offering, broadening its

reach into managing business process as well, according to Chuck Henderson, director of product marketing. "The overall strategy is to manage change across all the places it is occurring, while supporting multiple platforms and tools," Henderson said. "TeamShare takes us into the process management side."

Serena's view is supported by Gartner Inc. analyst Jim Duggan, who said enterprises are placing more emphasis on process and administration for getting software into production. "The question is, what happens when development is done and the production shop gets [the application]," Duggan said. "Companies that put business-critical applications on dis-

## Novell to SCO: Put Up or Shut Up About Unix

Joins German company to demand proof of property rights, code theft

BY YVONNE L. LEE

Like aftershocks following an earthquake, the effects of the SCO Group's assault on Linux continued to ripple through the industry late last month, as company after company staked out positions to cover their assets.

Microsoft Corp. paid licensing fees for Unix; the Open Group emphasized that it, not SCO, owns the trademark to the Unix name; Lindows.com revealed that it had an agreement protecting it from a lawsuit; SuSE Inc. said it would continue to support UnitedLinux; and Novell Inc. and German company LinuxTag both called upon SCO to

prove its claims more fully.

The spate of activity follows SCO's April lawsuit against IBM Corp. alleging that Armonk took code it licensed from AT&T, the former owner of the Unix technology, and placed it in Linux. SCO (www.sco.com) said it has found specific lines of code that appear identically in both IBM's version of Unix and in



SCO needs to substantiate its claims, says Novell's Messman.

Linux. In addition, the company in early May sent letters to the 1,500 largest companies notifying them that they may be in violation of SCO's rights.

"I don't think people are really scared yet. They're waiting to see what happens with the IBM suit," said Bill Novell's Messman.

► continued on page 16

tributed platforms are trying to meet the same quality-of-service standards as mainframe 'glass houses' did."

Duggan said the high-end change management tools that also encompass process take about 10 percent of the SCM market now, and he expects that to climb to 20 percent in the next five years. With this acquisition, he said, Serena is better placed to compete against such companies as Computer Associates, Kintana and Merant, and he added that MKS is headed in the same direction with its Integrity Manager tool.

"If Serena can get people to look at them on a functional basis, for the same price of [IBM's Rational] ClearCase and ClearQuest, they're delivering a whole other slice of functionality," Duggan said. "The problem is, people look at Rational and say, 'This is the Cadillac—it must have the most features.' That shows what a great job of marketing Rational has done

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## SUN MOVES TO OPEN UP, STREAMLINE JAVA PROCESS

BY YVONNE L. LEE

Sun Microsystems Inc. has proposed changes to the Java Community Process that would streamline the process while also making it more open and vendor-neutral.

Under the proposed revisions, called JCP 2.6, a period in the review process that had been for member-only review would now be opened up for public review. Further, the executive committee balloting that happened in the middle of the process would now happen at its conclusion. JCP 2.6 is itself going through the community review process as Java Specification Request 215,

► continued on page 12



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- ▶ *The **Middleware Company** compared the .NET Pet Shop Web application on Windows Server 2003 to the performance and scalability of a comparable, optimized J2EE™ application. The .NET connected application on Windows Server 2003 is more than 250% faster, 76% less expensive based on price/performance, and required 11,000 fewer lines of code.*



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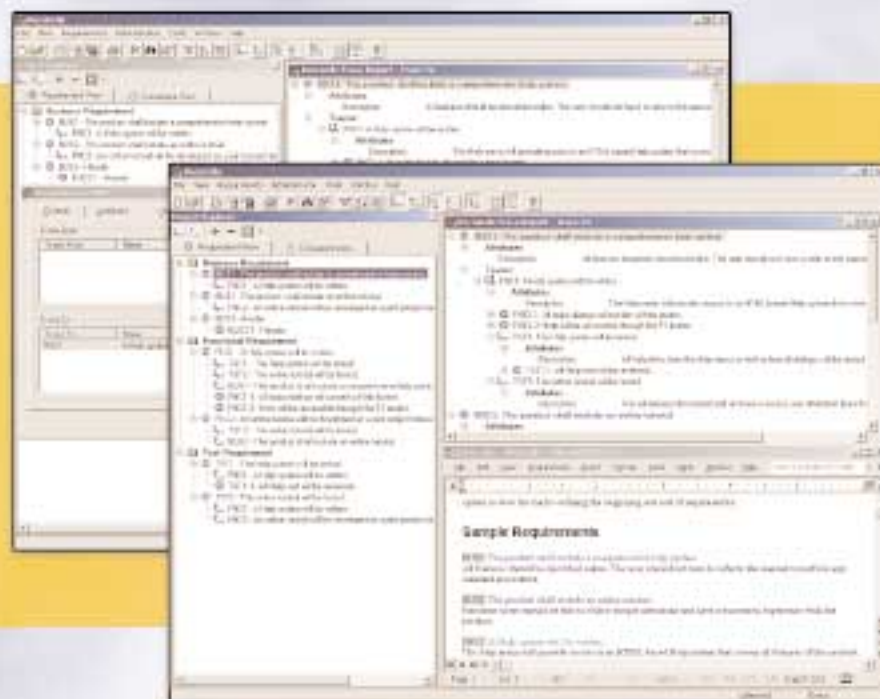
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# Microsoft: Windows Server 2003 Ready for NT Users

Claims architectural improvements enough to entice older customers to migrate

BY YVONNE L. LEE

Microsoft Corp. is making a concerted effort to get its installed network server base—as much as one-third of which still could be running the 7-year-old Windows NT 4 network operating system—to use Windows Server 2003.

When the company launched Server 2003 in late April, it touted the benefits of the new server operating system compared with Windows NT Server, rather than the more recent Windows 2000 Server.

At the Windows Server 2003 launch, Microsoft put its marketing machinery into high gear, aiming squarely at NT users. CEO Steve Ballmer emphasized reasons to upgrade from Windows NT to Windows Server 2003, but not why to upgrade from Windows 2000 Server to Windows Server 2003. In addition, the company's Web site lists "Top 10 Features of Windows Server 2003 for Organizations Upgrading from Windows NT Server 4.0," as well as a white paper about why to upgrade from Windows NT to Windows Server 2003, but no such information for Windows 2000 Server users.

One reason Microsoft chose to focus on Windows NT users is that upgrading this operating system requires a total overhaul of

the network, whereas Windows 2000 Server and Windows Server 2003 networks can coexist, said Bob O'Brien, a group product manager in Microsoft's Windows Server division.

"Windows 2000 was really the release where performance and reliability infrastructure were within the server. Windows [Server] 2003 is an improvement on that architecture," he said.

## THE ACTIVE DIRECTORY ISSUE

While Microsoft tries to persuade its customers to upgrade, one of the reasons it lists as a most compelling strength of Windows Server 2003 also happens to be one of the main reasons customers have stuck with NT: Active Directory. Introduced with Windows 2000 Server, Active Directory is a database of information about users, computers, peripherals and other resources on an extended network. Serving as the central mechanism for user authentication not only for logins, but also for applications like Microsoft's Exchange e-mail server, Active Directory is more scalable and offers more options than the domain system used in NT, but it requires network administrators and managers to know a lot more, according to Doug Hazelman,

director of product management at Aelita Software Corp. (www.aelita.com), a Dublin, Ohio-based company specializing in products that help organizations migrate from NT.

"There's a much greater learning curve between NT directory and Active Directory," he explained. "In NT, there wasn't much of a directory; you had users and groups, and that's about it. With Active Directory, there are things like namespaces and DNS. The complexity is a lot greater than it was in NT."

Along with that complexity is the added cost of hiring staff to evaluate and do the migration, said Rob Zelinsky, director of network systems at Resurrection Health Care (www.reshealth.org) in Elk Grove Village, Ill. The medical facility uses NT and does not plan to move to a new server for at least another 12 months. "We would have to devote a team of 12 people for six months," he said.

In addition to those people's salaries, his company would have to account for possible downtime as it moved to the new operating system, he said.

Microsoft contends that the payoff is much greater if organizations take the plunge and move to Windows Server 2003, however. For one thing, by using Active Directory, organi-

zations reduce the number of servers they need as domain controllers, according to Microsoft's O'Brien. "A customer, by making the decision to do nothing, takes from [his organization] the opportunity to save money in its environment," he said. "By reducing the number of physical servers I have, I can do more automated tasks and do more valuable IT activities within my infrastructure."

Intrawest Corp. (www.intrawest.com) is taking advantage of Windows Server 2003's more granular management system to manage its various resorts more easily, said systems architect Phillip De Connick. "What we have been working with up until this stage is each and every resort that came on board would be an NT 4 domain with two-way trust to at least one other domain. [As we add more resorts,] management of those domains becomes more difficult," he said. "Active Directory takes these self-contained domains where we can break up administration at a more granular level. Instead of having 30-odd domains to manage, we have one."

Moving beyond the Active Directory issue, O'Brien believes that other performance and administrative enhancements in Windows Server 2003 might together win over NT users.

Among those are the ability to specify individual administrative rights, rather than the all-or-nothing administration in 2000 Server; better clustering capability; support for the .NET Framework; and improved security, including firewalls and Kerberos 5.

## NT TO LOSE SUPPORT

Features may not be enough to drive people to another operating system, said Resurrection's Zelinsky. "Microsoft releases features that they think we'll want, but they're not must-haves," he said. "We don't need to collaborate like they want us to. Our user community is not the most advanced. They log in to file and print services, and they use e-mail and they're pretty happy."

In fact, the medical center is content with NT, which Zelinsky said is stable and reliable. What may end up pushing users off NT and onto Server 2003 is that Microsoft is phasing out the aging operating system. Starting Jan. 1, 2004, the non-security hot fixes will no longer be available. At the start of the following year, security fixes, pay-per-incident, and premier and online support will stop.

"Nobody in their right mind would run any operating system without support," said Zelinsky. "It's suicidal." ■

# Zero G Updates Running Applications

New release of InstallAnywhere focuses on server software

BY ALAN ZEICHICK

Looking to accommodate server operating systems such as NetWare, Red Hat Linux 9 and Windows Server 2003, San Francisco-based Zero G Software Inc. has released version 5.5 of its installation-building tool, InstallAnywhere.

A major innovation, claimed Trent Wheeler, program manager for InstallAnywhere, is that the new release can install upgrades over running applications. "You have a running server application; you don't want to bring the machine down to upgrade the software. You want an installer that can respond intelligently to the existing parameters on the system," he said.

While not every application



InstallAnywhere can create application installers for a wide variety of operating systems.

can be installed without stopping, "depending on the operating system and exactly how the server system is running, it's

not actually that hard to do," he added. For example, Wheeler said that on Windows servers, files lock, and "so a lot of the

support we've added is for Windows services. So, we may need a reboot if a DLL is locked."

InstallAnywhere attempts to be smarter about upgrades as well, he said. "We also have the ability to detect previously existing files now, and if certain files exist, then go down a specific set of [installation] logic." This can be used, said Wheeler, to accommodate complex upgrade paths within a single installation file.

Regarding the help files, Wheeler said, "as installations have become more complicated, your application may have sophisticated configuration instructions. While a lot of that can be done through InstallAnywhere, sometimes you need to

display additional information."

"Installers don't generally have any help at all," added Eric Shapiro, founder and CEO of Zero G (www.zerog.com), "but with enterprise software, there are questions like 'What do you want the port number to be?' or 'Which domain host do you want to have?' that may be easy if you understand the terminology—but might have a specific reference for your specific applications. Our help isn't on how to use the installer itself, but to provide guidelines for deployment."

InstallAnywhere 5.5, available now, also is shipping for Mac OS and Unix. The program's standard edition costs US\$995 per developer seat; the enterprise edition, which allows for headless installations, localization into 29 languages, more complex installer rules and a Java-based API, is \$2,995. The Mac OS X version is \$1,995. ■



# XAware Continues Move Toward Integration

Updated suite includes data factoids, packaged-app wizards, support for JAAS, RMI

BY ALAN ZEICHICK

Continuing its migration from a pure-play XML database provider to a data integration supplier, XAware Inc. has updated its integration platform, XA-Suite. Version 3.0, which began shipping in late May, adds new features for data transformation, security and connectivity to enterprise packaged applications.

The suite consists of a data integration server called XA-iServer, a visual design tool called XA-Designer, and adapters for external data sources. According to the company, the XA-Suite aggregates data from

multiple information sources into a single virtual XML database with a common schema. That virtual database can then be accessed by Web servers or desktop applications to provide a single view of the data, regardless of its original source.

The new release adds factoids, a new facility for creating reusable programmable functions for manipulating incoming data in real time, such as to perform format transformations, arithmetic conversions and aggregation functions such as subtotaling. The company says that the XA-iServer also now can handle streaming

XML documents more efficiently through a better memory management scheme.

The visual design tool, XA-Designer, now includes a drag-and-drop mapping editor that converts from one schema to another, intended for converting in-house data formats to and from industry schemas such as JusticeXML, according to XAware. The company offers Java and Windows versions of the tool.

XAware ([www.xaware.com](http://www.xaware.com)) says that the Java-based suite's security model now conforms to the JAAS, the Java Authentication and Authorization Service.

This provides a simplified way for users, or end-user applications, to identify themselves to the integration server. XA-iServer then can offer a variety of XML-based views depending on the user's specified roles, as created by the visual designer.

For access to enterprise applications, XA-Suite 3.0 includes new configuration wizards for connecting to SAP's enterprise resource planning and Siebel's customer-relationship management software. The company says that the suite now has full bidirectional connectivity with those packaged apps. XAware had already

offered unidirectional adapters for SAP, Siebel and other ERP and CRM packages, as well as a variety of databases and main-frame applications.

The new version also supports Java-based Remote Method Invocation, to allow the integration server to talk to external applications that allow RMI.

The price of the suite ranges from US\$5,000 to \$50,000, depending on processor and connectors. The XA-iServer can be deployed on Windows as a Java JAR file, or as a stateless EJB message bean on J2EE app servers. ■

## From Garden.com to SQL Performance

Start-up commercializes P6Spy open-source database tool

BY ALAN ZEICHICK

In the late 1990s, Garden.com was the poster child for the new breed of dot-com companies—it had a simple business model focused on online ordering and delivery of garden supplies, a valuable domain name and a US\$49 million initial public offering in September 1999. But by November 2000, the company joined fellow highfliers such as Pets.com on the scrapheap, with its 290 employees laid off and its famous Web address sold to the Burpee seed company. So, what did its founder, Cliff Sharples, do? Raise more money and start another company, this time selling development tools instead of garden tools.

Sharples is now president and CEO of IronGrid Inc. ([www.irongrid.com](http://www.irongrid.com)), an Austin, Texas-based firm that's concentrating on lightweight tools for Java developers. Sharples described the company's business model as the antithesis of large companies in the market, such as IBM with its Rational product line, or Borland with its Optimizeit suite, or Quest's JProbe, which he characterized as products that developers find too expensive and complex.

By contrast, Sharples said, IronGrid will offer low-priced performance or debugging problems. The first two: IronEye SQL, newly updated to version 1.1, and the recently introduced IronEye Cache.

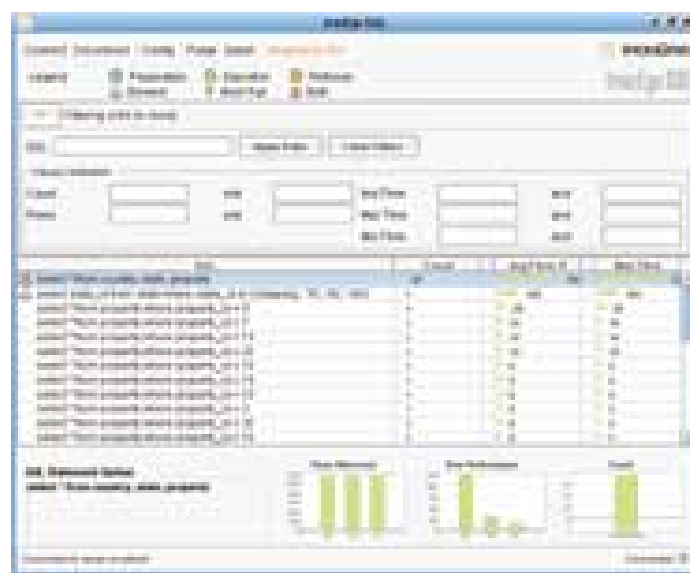
Sharples described IronEye SQL as a commercialized version of P6Spy, an open-source tool that intercepts database access statements using JDBC. P6Spy was originally developed by Andy Martin, then the CTO of Garden.com, to help the company tune its database-centric supply-chain system, explained Sharples, and was released as open-source software under the Apache software license in 2001. Today, Martin is the founder of Digital Cheetah, a Web development company also in Austin.

IronEye SQL works as a virtual JDBC driver, said Sharples, helping developers identify performance issues with database calls from Java applications. "It exposes traffic in the database," he explained, and can reveal which calls are taking too long to complete, or indeed, which calls may not even be

necessary to the application.

Version 1.1 of the tool, which sells for \$395 per seat, can now be integrated with the Apache Ant build tool for Java; this allows each automated build of an application to be automatically tested, and the results viewed immediately or logged for later analysis. This lets developers determine how an application's performance improves or degrades during coding, said Sharples, and might be especially suited for agile processes such as Extreme Programming, where an application is built nightly, each time with additional functionality—and the potential for a new function to have a significant impact on start-up or run-time performance.

The new IronEye Cache product is designed to help developers determine if caching would improve their applica-



IronEye SQL analyzes database calls so developers can optimize performance.

tion's performance.

The cache, which sits between the application and the database, stores SQL statements in memory to minimize database calls, he said, in addition to gathering metrics about database usage. After running the application with the \$695 IronEye Cache installed, devel-

opers can then analyze the cache results to see if a cache should be built directly into the application, and if so, how the cache should be configured.

Sharples wouldn't say which other tools are under development, but indicated they would be similarly priced and targeted at specific coding issues. ■

## N SOFTWARE'S EDI COMPONENTS EXPAND TO .NET

BY ALAN ZEICHICK

Component vendor N Software Inc. is continuing to expand its .NET product line, this time with IP Works EDI for .NET, which helps developers send and receive secure electronic data interchange transactions across the Internet.

IP Works EDI fits within the company's family of connectivity-oriented products, many of which are focused on various Windows component models, includ-

ing ActiveX, COM and .NET.

The protocol used by the IP Works EDI component set, according to the company ([www.nsoftware.com](http://www.nsoftware.com)), is AS2, an Internet Engineering Task Force (IETF) draft specification for secure real-time transmission of ANSI or UN/EDIFACT-compliant EDI data over HTTP.

The AS2 draft spec was proposed in January as an update to the IETF's AS1 protocol, which transmitted data via e-mail as

MIME attachments.

N Software's pricing model for IP Works EDI is based on hub-and-spoke distribution that's common within EDI trading networks, where you have one company that's exchanging bid requests, orders, inventory status and other transactions with a large number of providers—the type of situation you get with General Motors or Wal-Mart.

"The spoke license is free. This allows anyone to use IP

Works EDI to build client applications that send EDI via AS2 to anyone," explained Eric Madariaga, a program manager at N Software. "However, in order to receive data from their trading partners, they will either need their partner to have a hub license of IP Works EDI, or they will need a hub license of their own."

The hub license will be priced around US\$1,495, he said, and can communicate with any AS2-compatible server. IP Works EDI was set to be released in early June. ■

# Scavenging Web Services With Seagull

## LegaSuite Studio turns WSDL files into ASP.NET applications

BY EDWARD J. CORREIA

Like food scraps on a park bench, Web services are a commodity to be sought out and consumed. And while such a metaphor may not have been in the minds of developers at Seagull Software Systems Inc., capabilities of its LegaSuite Web Services Studio released in late May conjure up the image.

According to Andre den Haan, Seagull's vice president of product strategy, the tool consumes WSDL files, public or



**LegaSuite creates XML, COM and Java mainframe interfaces, says Seagull's den Haan.**

private; models their workflow in its drag-and-drop environment, in which developers add UI logic; and then spits out complete .NET project code. "The end result is an ASP.NET application with all files deployed to the server," including C# source

code, Web forms and Visual Studio .NET project files. "Should [a developer] decide to modify the code, you can do so," but knowledge of .NET coding is not necessary to use the tool effectively, he claimed.

Though it can stand alone, LegaSuite Web Services Studio also is offered as part of Seagull's LegaSuite Software Platform, enterprise tools that include a host-to-Web environment that makes COBOL and mainframe apps accessible through Web services. "Once everything is expressed in a WSDL file, you will need a tool like LegaSuite Web Services Studio to consume those Web services and turn them back into applications."

Indeed, den Haan believes that Web services will be a significant part of all future development. "We're in the second or third phase of a chain reaction that was ignited by Web services, which initially were used for internal point-to-point communications and integration, and have become adapted across enterprises and firewalls. Now they are a ubiquitous part of software development."

With its tools, the company (www.seagullsw.com) mainly targets the large enterprise, such as utilities and insurance compa-

nies, many of which den Haan said still use mainframes. "Those companies also have large call centers, [which] nine out of 10

times reside on big mainframes. To modernize or create new versions of the call center is a very big deal." But with LegaSuite

tools, den Haan claimed, even nontechnical staff can create XML, COM and Java interfaces to permit mainframe data access

from a browser. "You allow people, not necessarily developers, but mortal human beings and business analysts, to develop applications."

LegaSuite Web Services Studio 2.0 costs US\$5,000 per developer seat; deployed applications require a Windows 2000/03 server. ■

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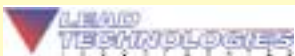
## News Briefs

## PRODUCTS

MySQL AB has released versions of its **MySQL** database software for the AMD64 architecture running on Linux, and on x86 processors running QNX's Neutrino 6.2.1 operating system . . . Oxford, U.K.-based QED Business Systems Ltd. has released **FireXML Parser**, a Windows application that lets mainframe batch jobs use XML-formatted data . . . Munich, Germany-based glnstall Corp. has updated its **Ghost Installer Studio**, a tool for XML-based software installations. Version 3.6 now works with VS.NET 2003, as well as with Borland's Windows IDEs, and has RSA-based encryption keys . . . IBM Corp. has previewed **DB2 8.0**, its first 64-bit version for the mainframe. The database increases maximum table size to 16 exabytes. It also natively supports XML and Java, and allows a database schema to be modified without stopping the database . . . The first production version of Raining Data Corp.'s **TigerLogic XML** database is designed as a midtier operational data store, and uses the Pick Universal Data Model. Version 1.1 of TigerLogic is available for Solaris and Windows for US\$25,000 per server . . . The latest version of MKS Inc.'s **MKS Toolkit**, a set of Unix-like developer utilities for Windows, now runs on 64-bit Windows. The toolkit also includes a new 64-bit SDK . . . Jungo Ltd. has added Windows CE .NET on the MIPS platform to its supported hardware list for **Win-Driver**, its device-driver toolkit. Version 6.02 also works with PCI and USB devices running Windows Server 2003 . . . Xbridge Systems Inc. is offering a US\$10,000 add-in for its **Xbridge Host Data Connection** that provides access to IMS databases on mainframes . . . Edition 5 of Rogue Wave Software Inc.'s **SourcePro C++** component set now works with Intel's latest C++ compiler for Linux. It's also faster at serializing SOAP objects, and supports OpenSSL 0.9.7a . . . Lead Technologies Inc. has shipped a version of its **LeadTools**



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**Imaging Library** for PocketPC 2002.

The C-language library, which runs on both ARM and x86, handles image processing, color conversion, compression and viewing of files in dozens of file formats . . . **CodePro Express** is a new add-in for Eclipse and IBM's WebSphere Application Developer. The US\$199 tool, from Instantiations Inc., checks Java code against industry-standard and corporate best practices . . . Fair Isaac Corp. has updated its Java-based **Blaze Advisor** business-rules management software. Version 5 can build graphical representations of decision trees, and has new features for working with XML schemas . . . Neon Systems Inc. has released a SQL adapter for IBM's IMS mainframe database. The **Shadow Interface for IMS/DB** also allows RPC access via the J2CA, JDBC or ODBC APIs . . . Appligent Inc. has updated **AppendPDF Pro**, its server-based application for outputting Portable Document Format files, to be programmed via XML. Version 3.0 also can produce 40-bit and 128-bit encrypted files . . . **Reviewer for Rose 2.0** is an updated UML model review tool from Select Business Solutions Inc. The new version provides more detailed error and warning messages, and can accommodate cyclic dependencies within the review process . . . CipherSoft Inc. is now offering **PL/SQL Converter**, which migrates code from Oracle's SQL-based programming language to Java . . . Version 1.2 of **ANTS Profiler**, a .NET code analysis tool from Red Gate Software Ltd., includes a new Visual Basic and C# code parser. The tool costs US\$195 per seat . . . Spectrum Software Inc. has updated its **SpectrumSCM** Java-based configuration-management server. Version 1.1.3 adds session pooling, event/trigger APIs, client/server version validation and XML-based data migration . . . Solid Information Technology Corp. has updated its **BoostEngine** in-memory database. Version 4.0 now runs on OSDL Carrier Grade Linux . . . The new version of **Visual Build Professional** from Kinook Software Inc. now supports Borland's JBuilder and Delphi, Perforce SCM and Microsoft's SQL Server. Version 5.0 of the build utility, which runs on Windows, costs US\$295 per developer . . . Pegasus Imaging Corp. has released its **PICTools JPEG-LS** compression toolkit, a C-language library. JPEG-LS is a new ISO-standard lossless format for 2-to-16-bit grayscale and 24-bit color images. The library costs US\$3,999 . . . Excelsior LLC has updated its **Jet** Java Virtual Machine for Windows. Version 3.11 works with J2SE 1.4, and includes new JIT cache optimization and ▶ continued on page 11

# ANTs Database Focuses On Stored Procedures, SQL92

Company claims v. 2.0 doubles performance of Data Server

BY EDWARD J. CORREIA

"Oracle is great at solving most database problems," said Gary Ebersole, president and chief operating officer of ANTs Software Inc., which develops and markets a high-performance SQL database development system. "But the 10 percent of problems they can't solve, that's what we're going after."

That 10 percent are databases used by hundreds or thousands of concurrent users for entry to online transaction processing systems requiring real-time access to data such as stock trading, telecom directories and financial systems.

On May 31, ANTs (www.antssoftware.com) was scheduled to release Data Server 2.0, which it said will have the ability to execute stored procedures and will be fully compliant with SQL92, the ANSI standard SQL command set. According to Ebersole, the ability to execute stored procedures should

have been present from the start. "Our earlier release was more of an early prototype. I took a look at it and realized we had some things to do. Our 2.0 release really represents our coming-out party."

Ebersole said that stored procedures benefit developers in several ways. Aside from the reduced client communications overhead, they help facilitate code reuse. "Often when you're doing an operation against a database, you're applying a collection of SQL statements and conditional logic; usually looking for one result back. What many [developers] will do is encapsulate those to make it easier to get the result from the database without having to incorporate a lot of SQL in the application."

Ebersole claims a twofold



ANTs' earlier release was more of a prototype, says Ebersole.

improvement in performance, for which he credits microthreading, a technique that leverages symmetric multiprocessing hardware capabilities, and compilation of SQL commands, which he said is unique to ANTs.

"No database system that I know of does runtime compilation of machine code. Like in Java, it turns out that you reuse the same [SQL] procedures all the time, so you only have to compile them once, and then you cache them. Each time somebody sends a command, we look it up on the cached command table. [If we] see that it's already compiled, all we [take are] the parameters," he claimed.

Data Server 2.0 runs on Solaris 8 and Windows 2000, and costs US\$25,000 per server processor. ■

## .NET the Object of New O/R Tool

Start-up Olero aims to generate data layers, models

BY DAVID RUBINSTEIN

A new company, Olero Software Inc., is targeting the .NET Framework with the release late last month of an object-to-relational database mapping tool called ORM.NET that automates the generation of a data layer and data object models.

ORM.NET provides a login ID for users to connect to a database server, and allows them to select the database they wish to create a layer for, explained Joseph Benjamin, president of Olero, which was spawned late last year out of CatinHat Software Inc. (www.catinhatsoftware.com).

Benjamin said that ORM.NET reads all the schema information and returns visual representations—each table is represented as an object in a data object model, while each column is shown as a property. Underneath, ORM reads the relationships defined in the schema, so parent objects and

children of those objects also are visually displayed, he said.

"Traditional code generators force you to manually create your classes and then map those back to your schema," explained Benjamin. "With ORM, you point at the database and we automatically resolve the mapping, which is a huge time-saver." Benjamin estimated that as much as 40 percent of total development time can be cut. Creating data layers, he said, "is the most tedious, time-consuming and boring part" of application development.

ORM.NET takes advantage of one of the key features of Microsoft's ActiveX Data Objects .NET (ADO.NET)—its data sets. In ADO.NET, he said, data sets can be used to hold hierarchical data tables, such as a customer, the customer's orders and fulfilled orders. What ORM.NET does is abstract out the data layer, generate a SQL statement,

and commit all changes back to the database with a single call, he said.

He added that the O/R tool allows for customizations that affect how the data object model is produced. "You can set the scope to non, or protected or internal, and can set them by defaults," he said. "The relationships can be 1-to-1 or 1-to-many."

Benjamin admitted the biggest hurdle Olero (www.olerocom) faces is winning over developers generally leery of relying upon generated code. "We think we've done a good job making a useful API and a well-written code generator," he said. The generated code is output as C# or Visual Basic .NET; ORM.NET works with any standard relational database.

ORM.Net version 1.4 is available now and sells for US\$495 per developer, with one year of upgrades and e-mail support. ■





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## J2EE Extends to NetWare With App Server Upgrade

BY YVONNE L. LEE

Just under a year after acquiring Silverstream Software Inc., Novell Inc. has a J2EE application server that works with NetWare.

Version 5 of Silverstream's Extend Application Server, which began shipping in late May, has been retooled to work on Novell's operating system, and is now rebranded as a Novell product.

"By having the application server run on NetWare, you take the investment you already have in your NetWare infrastructure and you breathe new life into it," said Frank Auger, Novell's vice president of product management and support for Extend products.

The company had planned to ship the Extend app server along with the rest of the Extend suite, but instead pushed forward the release date to coincide with the midyear release of NetWare, Auger said.

Customers who have maintenance licenses for NetWare can upgrade to the next version at no extra cost. Auger estimated that the company has 4 million such users.

No additional functionality has been added to the application server. Instead,

the increased functionality will be added to the other parts of the suite—Novell's Composer integration server, and Director interaction and portal server.

"If you stray too far from [the Java specifications], you do away with the portability part of the story," Auger said. "The application server is the wrong level to differentiate from a feature perspective."

The Extend app server is compatible with the J2SE 1.4 specification and has received Sun's Java Verified imprimatur for interoperability, according to Novell.

It is available individually in three versions. The Enterprise Edition supports clustering and provides for failover. It has a retail price of US\$10,000 per processor. The \$5,000 per-processor Professional Edition lacks the clustering support. The \$495 Developer Edition is limited to 10 concurrent sessions.

It also will be bundled with NetWare, and with Composer and Director, as part of the Extend suite when it ships in the third quarter.

Extend Application Server runs not only on NetWare, but on HP-UX, Linux, Solaris and Windows. ■

## Apple WWDC to Show Off 'Panther'

BY YVONNE L. LEE

Apple Computer Inc. CEO Steve Jobs will showcase the next version of the Mac OS X OpenBSD-based operating system at the company's Worldwide Developers Conference, beginning June 23 at San Francisco's new Moscone West convention hall.

Originally scheduled for May 19-23 in San Jose, the show was delayed so that Apple could finish more work on the operating system, code-named "Panther." Apple refers to the operating system as "the next release of Mac OS X," but rumors have circulated on various Mac news sites about whether it will be numbered OS 10.3 or something else.

"That's one of the things about Apple," said Richard Kerris, senior manager for worldwide developer relations. "Everyone likes to guess and think they know [what we're doing], and we like to surprise them."

The five-day conference will now occur June 23-27.

The Cupertino, Calif.-based company has planned more than 170 sessions, falling into the categories of enterprise IT, QuickTime, Apple developer tools, applica-

tion frameworks, core OS, graphics and imaging, and hardware. The enterprise IT track is new this year, and the QuickTime track has been expanded, according to Apple.

The QuickTime track will fold in what was once a separate conference, QuickTime Live. Although that conference largely focused on creating QuickTime content, it will interest developers because many applications link to QuickTime APIs, according to Frank Casanova, director of QuickTime product marketing. Casanova claimed that 12 new applications ship daily with links to the multimedia technology.

The newest version of QuickTime, announced June 3, will support the 3GPP file format, making it possible for developers to create streamed media content that can be played on 3G mobile phones, Casanova said.

The enterprise IT track will focus on Mac OS X Server, and Xserve server and storage technologies, as well as the open source and open standards on which they are based. Other topics in this track are Java, WebObjects, Directory Services and system integration. ■



**CONFERENCE:** June 23-27  
Moscone West, San Francisco

**CONFERENCE HOURS:**  
**Monday,** 3:30 p.m.-5 p.m.  
**Tuesday,** 9 a.m.-6:30 p.m.  
**Wednesday,** 9 a.m.-6:30 p.m.  
**Thursday,** 9 a.m.-5 p.m.  
**Friday,** 9 a.m.-6:30 p.m.

**KEYNOTE SPEAKER:**  
**Monday,** 10 a.m.-Noon, Steve Jobs,  
CEO, Apple Computer Inc.

**MAC OS X STATE OF THE UNION:**  
**Monday,** 2 p.m.-3:30 p.m.

<http://developer.apple.com/wwdc>



# QStudio Imports PMD Quality Rules

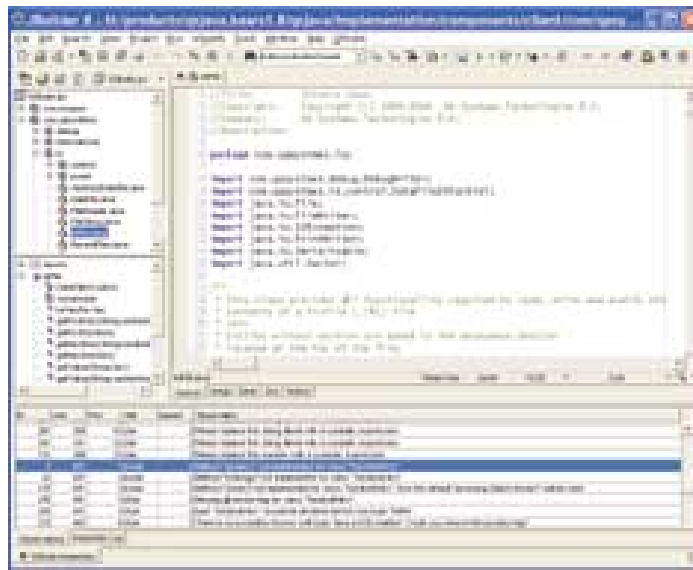
Java code analyzer uses open-source extensibility model

BY ALAN ZEICHICK

QStudio Professional, a tool that assesses the quality of custom Java applications, has been updated to allow developers to add custom rules based on the open-source PMD specification. The software is developed by QA Systems, based in Bannik, Netherlands.

Version 1.9 of the product, which will be available later this month for US\$295 or €295 per developer seat, is focused on compatibility with PMD, an open-source static-analysis tool (pmd.sourceforge.net). PMD scans Java source code to look at syntactic and logical errors, such as unused local variables or duplicate import statements. (According to the PMD project's authors, "We've been trying to find the meaning of the letters PMD. Because, frankly, we don't really know.")

The PMD tool uses its own syntax to define rules that are written either as a Java class or as an XPath expression. QStudio Pro 1.9 lets developers add PMD



QStudio provides code analysis within Borland's JBuilder or other Java IDEs.

rules that are written as Java classes, according to the company (www.qa-systems.com). The tool can run within its own IDE, or as a plug-in to extensible IDEs such as Borland's JBuilder or IBM's Eclipse or WebSphere Studio Application Developer.

QStudio Pro is available for Linux, Solaris and Windows.

The company also offers a US\$2,950 or €2,950 version, called QStudio for Java Enterprise, which lets projects or teams share common coding standards, and which reports on metrics about source-code compliance with ISO/IEC 9126, a set of standards for software quality. ■

## News Briefs

### MORE PRODUCTS

< continued from page 8

deployment tools. Pricing starts at US\$200 . . . Altiris Inc. has updated its **Altiris Deployment Solution**, a tool for remotely installing and updating software on server and client computers. Version 5.5 adds new role-based and scope-based security, a new imaging engine and scripted installations . . . Orsus Solutions Ltd. has updated its **Orsus Mobile Framework**, an application framework for .NET. Version 5.1 adds connectors and a visual mapping tool for Web services . . . AmberPoint Inc. has shipped a .NET version of its Web services management software, written in Visual C#. Previously, the company offered only a J2EE version of **AmberPoint**.

### PEOPLE

**JoMei Chang** has been named chairman of Vitria Technology Inc., a provider of business-integration tools; **Gary Velasquez** will succeed her as CEO in addition to his current role as president . . . **Charles Phillips**, a software industry analyst with Morgan Stanley, has joined Oracle Corp. as an EVP focusing on customer- and partner-facing activities . . . Sleepycat Software Inc., which makes the BerkeleyDB database, has hired **Rex Wang** as VP of marketing; Wang had headed worldwide marketing at Openwave Systems Inc.

### STANDARDS

Sun is updating its **Java Community Process**; version 2.6, as detailed in JSR-215, is open for public review. The update aims to improve transparency by mandating stricter reporting by expert groups and specification leads . . . The W3C has approved and adopted a **Patent Policy**, which seeks to ensure that its specifications will be royalty-free. The policy includes an exception process to handle conflicts. ■

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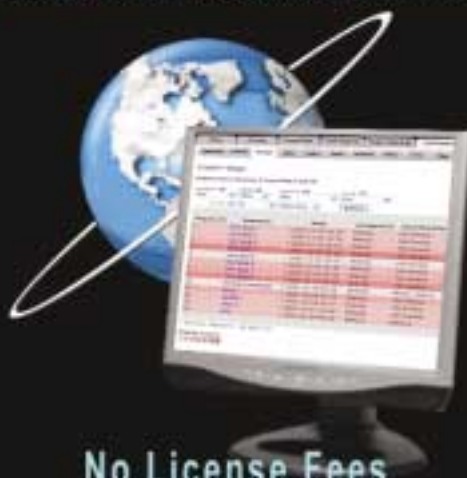
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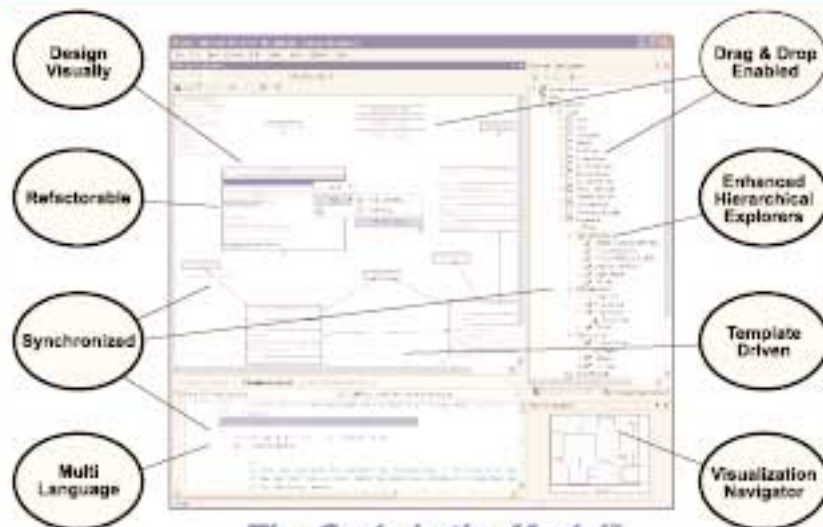
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## JAVA PROCESS

◀ continued from page 1

which is scheduled for a final draft in October and final approval in November.

The proposed changes in JCP 2.6 are the second revision to the process in eight months.

"It gives you a more trans-

parent and open process because it makes all the review phases visible to the general public, it brings JSRs on average quicker, and community members have more visibility into the activity of the JSRs and expert groups," claimed Onno Kluyt, director of the JCP program management office.

The benefit of moving the public comment and review to earlier in the process, according to Kluyt, is that those supporting a specific JSR can ask questions freely without worrying about an intermediate executive committee ballot that could put the kibosh on the whole effort.

Traditionally, Sun has been criticized most vociferously by IBM and HP for having too strong a role in controlling the Java specifications, but those feelings aren't universal, as other JCP ([www.jcp.org](http://www.jcp.org)) members argue that the community review works well.

"I do believe it's Sun's puppy,

but you need a big vendor to give it credibility," said Dirk Bartels, CEO of JDO Central, and a co-founder of Poet Software.

"The standards body, the community, needs to agree with the changes that Sun needs to make or another community member like IBM or Oracle needs to make [in a proposed specification]," said Kluyt.

To wit, the executive committee rejected four specifications that Sun initiated concerning Java 2 Micro Edition (J2ME)—JSRs 216 through 219 (See "CDC 1.1 Skips a Beat," page 19).

"The process doesn't let [Sun] push something out over everybody," said Tim Sloane, director of Internet infrastructure research at Aberdeen Group in Boston, "but it does allow them to say 'OK, we're putting it to a vote now, and we're not letting any more features be put into it.'" In this way, Sun can control the pace at which changes are adopted, but it cannot unilaterally choose whether or not specific changes are brought to the table.

### CRITIC SUPPORTS CHANGES

Although IBM is not the spec lead for JSR-215, it said in a prepared statement that it "had a key role in the development of the most recent updates to the Java Community Process." The company went on to say that it would like to see greater community perspective in the evolution of Java.

"The more that Java technology is associated with a coordinated, strong, industrywide effort rather than a single company, the faster we'll see Java technologies being adopted by enterprises," the statement said. IBM declined to reveal its own suggestions for changing the Java Community Process.

However, the flip side to more participation may be that it takes longer for specifications to get introduced, discussed, reviewed and approved, said Sloane. "Openness not only controls how many people participate, but how long it takes to get a standard ratified. Now, we've [hypothetically] got 200,000 participants—try to get that through a voting process, especially if you've got Microsoft breathing down your back," said Sloane. "Even IBM would agree that it's important that the process move briskly in order for the standard to move forward." ■



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# Four Views on Java

In the weeks leading up to JavaOne, SD Times spoke with four leading Java luminaries to get their views on the platform and where it's going.

BY ESTHER SCHINDLER

## James Gosling: On the Java Drawing Board

As developers write ever more complex applications to accomplish new feats of programming magic, they want their languages to make the task progressively easier. But, because their needs change and new technologies emerge, the computer language has to evolve, too.



That's certainly the case with Java, at least according to James Gosling, the man generally viewed as its "father." Gosling, who is vice president and fellow at Sun Microsystems Inc., sees Java as both an enabling technology for things to come and as an accepted tool in the enterprise. ("They expect J2EE the way you expect oxygen. You'd be dead without it, but you don't think about it every day," he said.)

"The wave of excitement is moving out from the center of the network," Gosling said, with cell phones and mobile devices—"and a big bag of J2EE and servers in the background feeding them."

To get there, the language will get new features, but only when they make sense. There are always plenty of requests for Java enhancements, most of which aim to make it easier to accomplish some task in the language. But, Gosling cautioned, sometimes the applications are on one side, and the language—and its complexity—are on the other. "The proposed feature can't make the language harder to learn, even if it makes some things easier to do," he explained.

Java gets both its strength and weakness from being a technology owned by the people who use it. While the end result is able to meet a broad selection of needs, the trade-off is that one has to do "a lot of things that look like a traditional political process," according to Gosling. "It's a challenge to do a statistical analysis on how useful proposed language changes would be, and come up with numbers that are really positive. But we have to consider: Is there enough bang for the buck?"

Then there's the impact a new feature has on the marketplace. For example, implementing generics (a common supertype in the class hierarchy) in Java was discussed for a long time, and a few years ago generics became available as an unbundled add-on. But tool vendors weren't happy, because they didn't have enough time to add support for the features.

Language features can be implemented in many ways, some of which cause heated debate. There were deep disagreements about the implementation of generics in C++, which Gosling said was "condemned by the academic community." Granted, Java isn't an academic exercise—he described it as "a blue-collar system for people who

► continued on page 14

## Rob Gingell: Lies My Software Told Me

Our reliance on computer systems has crept up on us. Software that was never certified for mission-critical situations is being used for such purposes anyway. Even when an environment is checked out for security and reliability, adding a new application wipes out the certification.



That's a major concern to Rob Gingell, chief engineer at Sun Microsystems Inc. In addition to his responsibility for Sun's overall technical architecture and product line direction, Gingell is chairman of the Java Community Process (JCP), the community-based process for evolving Java technology specifications, reference implementations and associated technology compatibility kits.

According to Gingell, building applications that we can rely upon is one of the reasons the JCP is so very important. "We do a lot of things, in running the JCP, to ensure that applications are never lied to. Not by malice, not by poor quality. Not by anything."

Application compatibility is vital, Gingell said, because of the life-and-death situations relying on it. Java's being used in control management systems for nuclear power plants, he said, even if it isn't

► continued on page 14

## George Paolini: The Standard Suspects

If you ask a Java luminary to peer into his crystal ball, what's he likely to see? For George Paolini, vice president and general manager of Borland Software Corp.'s Java business unit, the mist first clears around the view of Web services. "There are staggering possibilities," said Paolini, who had served as Sun's technical evangelist for Java before joining Borland.

Overhyping led to unrealistic expectations in the short haul, but the longtime Java activist believes that Web services will live up to the potential. Just not right away. "The promises that were made can be realized, but it's going to take longer than we initially expected. We're in the trenches now, trying to make it happen," he said.

One challenge is developer misunderstanding about the definition of Web services. The concept—exposing application functionality—has been around for a long time. But until recently, that exposure has been device- and hardware-specific, and developers haven't been writing applications that are inherently services.

Paolini explained, "Software development over the last 20 to 30 years has focused on developing monolithic applications in which components and functionality are designed to achieve one result. Instead, Web services [are] all about exposing the functions and reaggregating them for new users, in almost a 'just-in-time' fashion with the components located

anywhere. This gives us a more dynamic, fluid use of services on the Web."

Java's cross-platform heritage makes it the perfect Web services environment, according to Paolini. "The strength of J2EE makes it a natural. We have more simple access to data via XML, but Java's true value will come from transactional computing: particularly the immediate engine and the bridge into enterprise applications for Web services via EJBs."

In the short term, one effect of Web services development is a renewed emphasis on software engineering practices and complete life-cycle management, according to Paolini. With fewer monolithic applications being written, developers will need to spend more time on reiterative development—making design requirements, testing and deployment tasks even more important than they are now.

He expects to see a longer-term effect on Web services in mobile computing. "We're going to have roaming capabilities with our laptops the way we do with our cell phones," predicted Paolini.

To achieve the technology goals, though, Paolini said the industry has to establish standards—which is a never-ending chess game. "In some sense, it's pretty silly—people can behave like children in a schoolyard. We'll just have to wade through that." ■



## Simon Nash: Java's Hidden Depths

We all have unappreciated capabilities waiting for the right opportunity. Jazz artist Ella Fitzgerald originally intended to be a dancer, but when she froze up on stage, she began to sing.

Java is capable of many things, and it has solved all sorts of technical problems. Where has it been least well-exploited, so far?

To Simon Nash, chief technology officer in IBM Corp.'s Java Technology Centre in Hursley, U.K., Java's as-yet-unrealized capabilities are network-related.

Nash explained, "With portable executables based on bytecode, and runtime engines available for just about every hardware and software platform, Java code is uniquely able to move around the network. Java also has a security model built into the language that allows execution hosts to set up a sandbox environment in which Java code can't damage the host environment in which it runs."

Indeed, he added, "the ability to send executing code round the network is a powerful feature of Java that has not been exploited very much because of concerns about the security, resource, management and auditability implications of doing this."

"The trend is now toward portable data rather than portable code, with XML and

Web services being used to transmit this data," Nash continued. "However, the notion of mobile code is extremely powerful and could open up a new breed of applications that would run on the network and dynamically adapt to changing conditions rather than being manually configured to run in a given topology. This flexibility could be very important for the grid as well as for on-demand computing, and could make Java even more successful than it currently is."

With small devices becoming powerful enough to run J2SE, and with J2SE continuing to get bigger and bigger, Nash believes the time is right for the Java community to think about more modular componentized approaches to Java.

"Instead of the boxes that are currently labeled J2SE and J2ME, perhaps there could be a base language with various add-ons and components, with each component defining different profiles to suit simpler or more complex usage. This approach would allow developers to put together configurations that look like today's J2SE and J2ME, as well as other combinations to suit their needs," he said. ■



# LINUX STUDY

< continued from page 1

agers described themselves as committed to using Linux whenever possible, and another 36 percent said that they would employ Linux when it's clearly the best solution. Three percent said that they were guarded in their response to Linux, and would use it only on non-mission-critical systems. Another 32 percent said that they don't use Linux, but wouldn't be averse to doing so, while 5 percent said that they do not and would not use Linux.

By contrast, when development managers were asked what their company's attitude about Linux was, the results were lower. Only 10 percent said that they would use Linux whenever possible, but 38 percent said it's used whenever it's the best solution. Twelve percent use it only on non-mission-critical systems, and 26 percent don't use it but wouldn't be opposed to doing so. The anti-Linux camp was larger when considering corporate attitudes, with 14 percent of companies describing themselves that way.

The study showed that 70 percent of those polled currently use Linux somewhere in their organization. Of those, 64 percent used Linux for Web servers, 51 percent for application servers, 46 percent for

database servers and 44 percent for file servers.

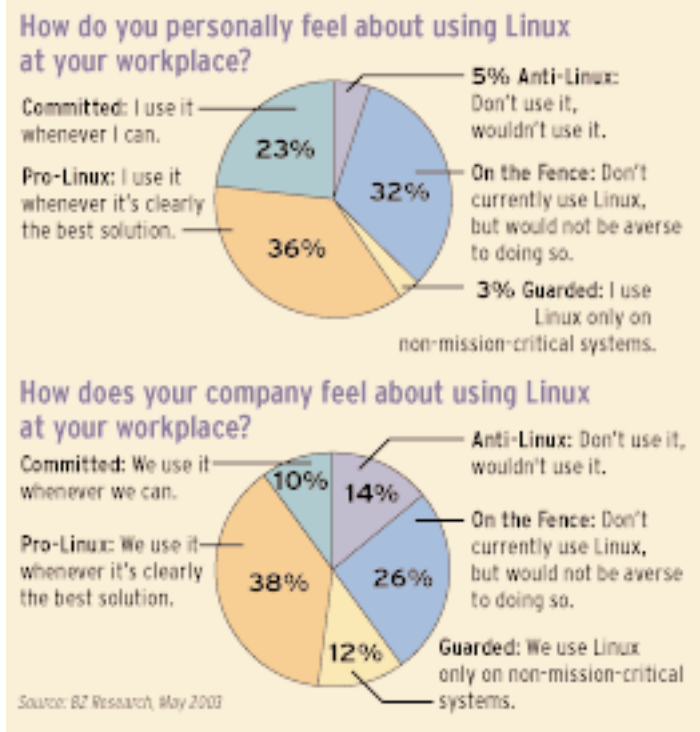
When asked if Linux was a supported corporate standard platform, 34 percent indicated that it was, and 25 percent said that it was not. A further 16 percent said that it was not supported, but would be allowed as an exception; another 11 percent said that it is not supported, but it is being considered. The remaining respondents said that their companies did not have standard platforms.

Fifty-five percent of respondents build custom Linux applications. Within that group, 74 percent use Linux workstations to develop the applications, and 49 percent use Windows workstations.

When it came to the concept of open-source software, 37 percent of respondents said that the open-source philosophy was a factor that did or would motivate their organization to use Linux. Twenty-nine percent said that the ability to view source code would influence them toward Linux, and 27 percent said it would be important to be able to modify the source code.

## USING ITS INFLUENCE

The BZ Research study provided a list of 26 factors, and asked if they would motivate the development manager's organization to use Linux, or if those same factors would be an obsta-



cle to Linux adoption.

The top motivators in favor of Linux were stability of the operating system (65 percent), total cost of ownership (63 percent), deployment cost (61 percent), performance (58 percent) and platform security (50 percent).

The most significant obstacles to Linux adoption were availability of technical support (35 percent), availability of applications (27 percent), quality of technical support (23 percent) and availability of training (22 percent).

When asked about the attitude of software developers

toward Linux, 31 percent of respondents indicated that this would positively motivate their company to use Linux; 16 percent said that it would be an obstacle to adoption.

The study, which was submitted to a random sampling of SD Times' qualified readers, was developed in cooperation with Open Source Development Lab ([www.osdl.org](http://www.osdl.org)), an independent vendor consortium; 370 readers responded to the poll, which has a margin of error of 3 percentage points. BZ Research conducted the study in mid-May. ■

# FOUR VIEWS

< continued from page 13

## GOSLING

needed to get their job done."

But with major disputes about finding a sensible technology solution, sometimes it's wiser to wait until the right answer becomes apparent. "I'm much happier leaving things out than doing something that's known to be stupid," Gosling said.

So, what's likely to make it into the next language revision? While the decisions are far from certain, Gosling does have a few he favors. He's looking at a new version of the FOR statement packaging standard practice around iterators.

Autoboxing is another, in part because the feature—a transition between primitive and true objects—has been asserted to be a win for enterprise uses.

Another oft-asked-for feature enhancement is support for enumerations. But Gosling said enums mean different things to different people. "If I had picked any of the ways to do enums, I would have gotten piles of hate mail. Any way has serious problems." However, one enum proposal has been "pretty much accepted," he said, and is slated for the next release. ■

## GINGELL

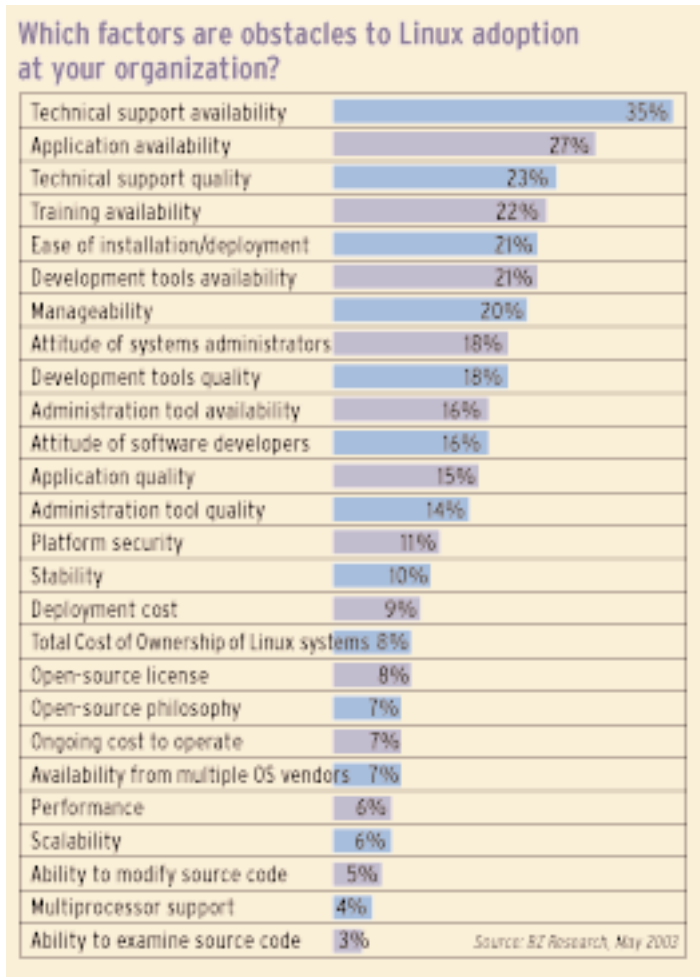
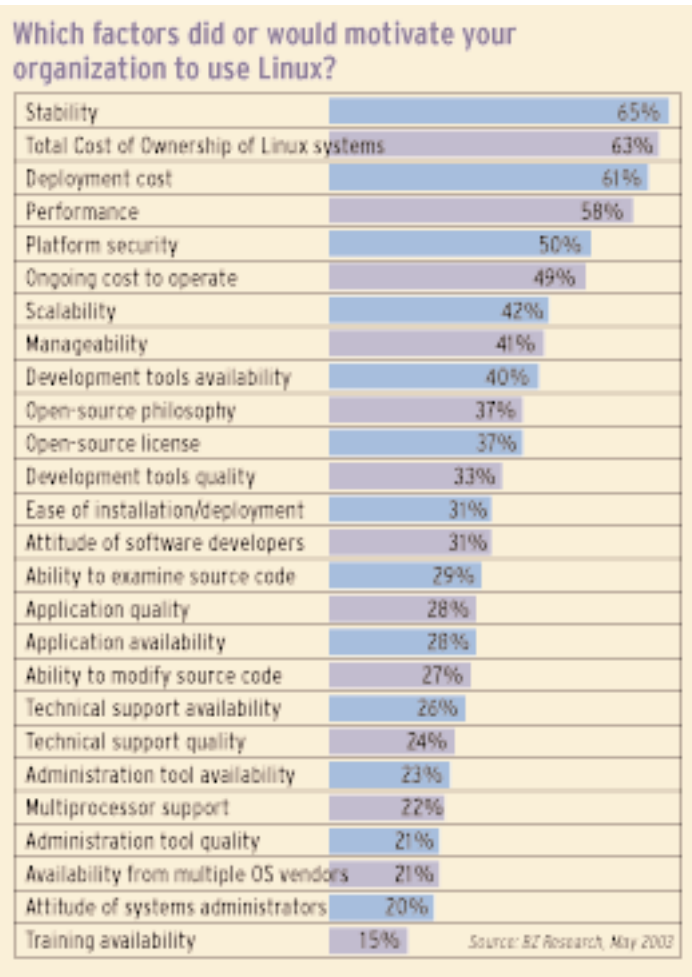
warranted for that use. Airplane cockpits are full of embedded technology that simply has to work.

Such ubiquitous technology has become too important to permit it to fail. "A few years ago," Gingell said, "some people went to bed thinking that they were running a Web site. When they woke up in the morning, they discovered they'd been running a mission-critical part of their business."

As a result, the JCP is putting a huge amount of effort into developing standards and specifications that developers—and their code—can rely on.

However, people who come up with the new and exciting developments always want to rush forward with innovation. But the new stuff is fragile, and needs life-cycle management built into it. That's true despite the apparent high cost of creating Java implementations.

"Yes, we should run the process as inexpensively as possible," Gingell said. "But 'as possible' has a floor. I never want an application to be lied to by anything that is Java," he said. ■







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## SCO

&lt; continued from page 1

Claybrook, research director for Linux, open source and Unix at Aberdeen Group in Boston.

While most companies either have responded defensively, as Microsoft did, or issued brief statements that

they intend to continue supporting Linux and open source, Novell issued the most sharply worded statement.

First, Novell challenged SCO's assertion that it owns the copyrights and patents to Unix System V, pointing out that the asset purchase agreement entered into by Novell and

SCO in 1995 did not transfer these rights to SCO. Second, it asked SCO to back up its claim that Unix System V code was copied into Linux.

In a letter addressed to SCO CEO Darl McBride from Novell president Jack Messman, Novell pointedly asks SCO to put up or shut up. The letter

criticizes SCO for being what Novell calls vague in its assertions regarding Linux.

"SCO claims it has specific evidence supporting its allegation against the Linux community. It is time to substantiate that claim, or recant the sweeping and unsupported allegation made in your letter.

Absent such action, it will be apparent to all that SCO's true intent is to sow fear, uncertainty and doubt about Linux in order to extort payments from Linux distributors and users," the letter said.

"SCO's making claims and we're asking for validation is what it amounts to," said Novell spokesman Gary Schuster.

According to reports published by the Reuters news agency, LinuxTag, which holds a technology fair and lobbies for Linux, told SCO to provide proof for its claims by May 30 or face court action in Germany.

Analysts say that although the SCO actions cast a pall over Linux and could threaten its adoption, SCO isn't exactly making a great business environment for itself even if it wins the case.

## GENERATING ILL WILL

SCO has the right to collect licensing fees for its intellectual property, Aberdeen Group's Claybrook said, but the way the company has gone about it has alienated both potential business partners and customers. "I think that SCO has set themselves up where they have no friends, everybody is mad at them, they've killed their Linux line, and they have a dead-end product," Claybrook said.

"While it has brought in some revenues, such as [from] Microsoft, it probably has been far worse in terms of its ability to conduct business in the future, because enterprises in general and user popular opinion is going against them and that goodwill to conduct business is going down the drain," said George Weiss, vice president and research director of the server group for Gartner Inc.

Weiss said a summit between Linus Torvalds, the creator of Linux, and the Free Software Foundation to both remove the offending code and ensure that nothing similar happens in the future could resolve the problem, but added that he wasn't sure SCO wanted the offending code removed from the Linux offerings.

"They don't want necessarily anyone to redress that claim," Weiss said. "They feel it is in fact that [an offense] exists and that they want compensation. If someone were to quickly hide, conceal, remove the offending code, it might weaken their case." ■



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# RootCause Ferrets Out Memory Leaks

BY YVONNE L. LEE

OC Systems Inc. was slated to begin shipping version 2.1 of its RootCause Java debugging tool on June 10, coinciding with the JavaOne conference. The biggest addition in the new version is a memory leak detector designed to protect bloated applications from crashing on the system.

RootCause 2.1 is designed to work on production application without modification.

RootCause tracks objects that have been allocated and identifies which ones haven't been de-allocated. Then, it displays a report of objects according to which objects' memory allocation had grown at the fastest rate. Developers then can go to the specific lines in an application to see where the error is taking place.

The program's interface had not been completed at press time, but OC Systems president Oliver Cole (www.ocsystems

.com) claimed that in the final version, the memory leak report would directly link to the lines in the code causing the error message.

Cole added that the longer

the leak-detection algorithm runs, the more accurate it becomes.

The software works with C and C++ code, as well as with J2EE and J2SE. It also can

detect leaks on remote computers, according to the company.

This version now runs on AIX and Linux, as well as Solaris and Windows.

Running RootCause re-

quires two pieces of software: the US\$2,995 console that defines the traces and displays the results, and a \$1,000 per-processor agent that collects the data. ■

## SERENA

◀ continued from page 1

over the years."

Henderson could not say what would happen to the approximately 65 employees of TeamShare, based in Colorado Springs. Also, TeamShare was set to release version 6 of TeamTrack later this month; it is unclear if that is still on track to occur.

Elsewhere, Serena (www.serena.com) announced an integration of its ChangeMan ALM process management tool, and a tighter integration of its ChangeMan DS tool, with Mercury Interactive Corp.'s Test-Director. Users, Henderson said, "can manage test processes, scripts and programs throughout the application life cycle."

Also, Serena announced net income of \$6.9 million, or 17 cents per diluted share, for the 2004 first quarter ended April 30. That was an increase of 12 percent over the first quarter of fiscal 2003. Total revenues of \$24.4 million for the quarter exceeded by 11 percent the revenues for the same quarter last year.

With the TeamShare acquisition, the company forecasted second-quarter revenues of between \$26 million and \$27 million. ■

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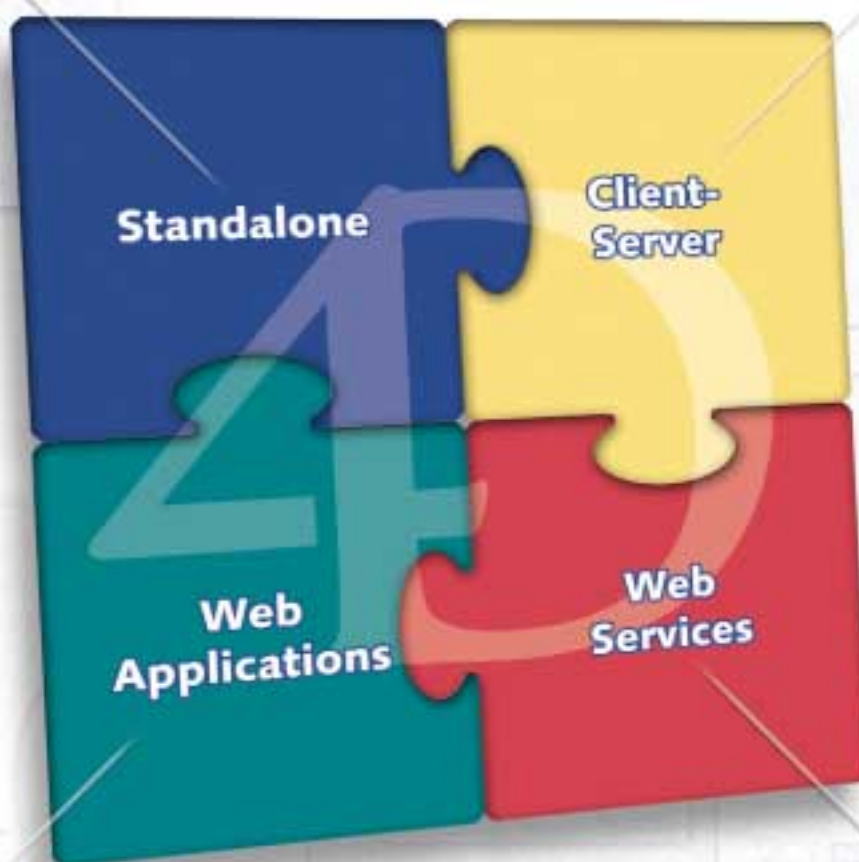
WHEN THE  
SOLUTION  
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fig 1: Standalone

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fig 2: Client-Server



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fig 5: complete development solution

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# ARM Wants Safer Processors in 2004

## Extensions to RISC IP strengthen security in high-end and wireless cores

BY EDWARD J. CORREIA

How secure is the address book in your mobile phone? Not safe enough, according to ARM Ltd., which released to developers in late May blueprints for extending its RISC-processor cores to provide hardware security to devices using the chips. The extensions, dubbed TrustZone, will provide a secure hardware partition for storing encryption keys or other critical data that will remain impervious to assault, the company claims.

Though the first compatible ARM CPU cores are not expected until 2004, specifications for TrustZone are available now. "This long lead time will help developers decide how to take advantage of the capabilities in the coming silicon and plan what they want to do with their applications," said Richard York, ARM's secure technologies pro-

gram manager. ARM's wireless and high-performance cores will likely be extended first, said York, with specific models to be revealed in November. Work on TrustZone APIs should be completed in the next few months, he added.

Mary Engels, ARM's director of operating systems and alliances, said that integrating security directly within the ARM processor core will offer applications more protection than they currently get with software-only solutions, and will eliminate the need for the added programming complexity associated with proprietary security coprocessors. "It will make [security] standard and pervasive across the architecture, and require one less [application programming] interface. It will also make migration easier when moving apps from

one handset to another."

York said that using separate circuits for security also can introduce the problem of availability. "If you're going to do a reasonably good job of supporting security on a chip set, the last thing you want is a second-source chip set, because that means you've got to rewrite a good chunk of your code to use it."

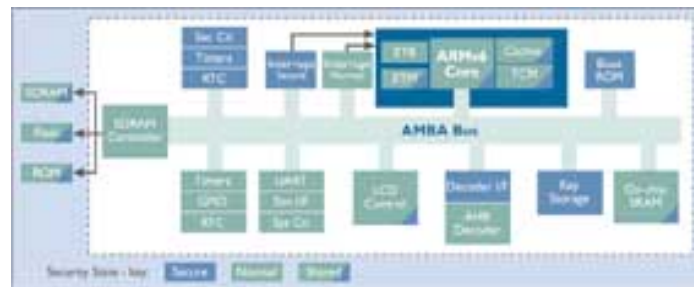
York said ARM (www.arm.com) will implement its security to work with any security scheme, standard or proprietary. "What we're trying to do is put in place ways of protecting secrets, and code that operates on those secrets, rather than putting in particular encryption standards. Because if you have the right foundations in terms of 'you build, you execute trusted code' on trusted data partitioned from the rest of the system, then

you can implement any security policy and algorithm you want.

"If you don't have hardware protection," York continued, "you're always going to be susceptible to software attack, be it reprogramming memory, rogue applications or something that exploits deficiencies in the software structure." York asserted that a fundamentally secure system should always permit applications to rely on key data. "There's an amount of code that

you must be able to trust, and you want to partition it from the operating system," thereby preventing access to that data by anything other than the intended applications.

According to Engels, ARM's security extensions also will serve to protect data on lost equipment. "There's a secure boot process which ensures that [unauthorized users] can't boot the system. So you can take security down an additional level." ■



Extensions to ARM's processor cores set up trusted data partitions that developers can use for any system-critical data.

# CDC 1.1 Skips a Beat; Four Sun JSRs Rejected

BY EDWARD J. CORREIA

Is Sun Microsystems Inc. out of touch with embedded developers? The company was rebuffed in late May when four of its own Java Specification Requests proposing CDC 1.1 were voted down by their respective executive committees amid concerns of excessive footprint and changes to its licensing policy.

The issues involve JSRs 216 through 219, which were intended to blend enhancements introduced with J2SE 1.4 into what would have been version CDC 1.1, the next version of J2ME's Connected Device Configuration and its Personal, Basis and Foundation profiles targeting handheld computers, cell phones, set-top boxes and other resource-constrained devices. The specs would have required inclusion of the Advanced Graphics and UI Optional Package detailed in JSR-209.

According to Peter Bernard, vice president of marketing at Insignia Solutions Inc., which voted against the specs, introducing these packages would severely impact device memory footprint, even if the device did not require the features. "Code size requirements had increased, [making] it difficult to apply CDC across the broad range of

devices it's designed for. There were also some hard requirements for building blocks that you had to have in there, regardless if they were applicable for certain devices."

The current CDC 1.0 specification declares that a compliant device be equipped with at least 512KB ROM and 256KB RAM. The CDC 1.1 specs would require minimums of 1280KB ROM and 512KB RAM.

Perhaps acknowledging a slight disconnect, Eric Chu, Sun's director of J2ME business and marketing, explained it this way: "The Java community crosses so many industries, sometimes it's hard to get everything coordinated. We've found that folks were concerned that we were bringing features that may not be relevant for TV [for example], but relevant for mobile enterprise."

Chu said the next version of the spec also will propose an increase in footprint, although the specifics still were being worked out at press time. "What we'll do is provide more clarity as far as the core platform footprint increase and [offer some parts as] optional components."

The justification for merging some J2SE features into J2ME, he said, was to help simplify

development across device types. "We're bringing CDC closer to J2SE because as [CDC] devices get bigger, it will make it easier for developers familiar with J2SE to use the same tools to develop mobile applications."

There also was concern among developers about changes to licensing. But on this issue, according to Chu, it was

developers that were out of touch. He said the change is reflective of JCP 2.5, the version of the community process adopted in October 2002 that divorced licensing fees for Technology Compatibility Kits from Reference Implementations. "There had been strong requests from the community to see those components licensed separately;

some wanted the option not to license the reference implementation as a way to lower costs."

Revisions are part of the normal JCP process, Chu said, and in the end, the specs will echo the needs of the community, not those of Sun. "The final feature set will ultimately be decided by the expert group of these JSRs; they will steer it." Revised versions of JSRs 216 through 219 were scheduled to be resubmitted before June 15, he added. ■

# COVIGO MOBILE FRAMEWORK TARGETS .NET

BY EDWARD J. CORREIA

In the perfect world, developers would be able to deploy a single binary to all mobile client devices—without having to standardize on a single deployment platform. With its target-independent authoring framework, Covigo Inc. offers a solution for the real world, in which even a small enterprise might have a mixture of incompatible systems.

The company develops and markets a J2EE-based system for deploying enterprise applications to Java and Symbian-based mobile devices using its own client runtime, called the Smart Client. In mid-May it expanded its target list with Smart Client .NET Edition, which it claims permits developers to deploy to any device

running Microsoft's .NET or its .NET Compact Framework.

"Many enterprises don't have just .NET or Java, but a mixture," said Dav Khare, co-founder of Covigo (www.covigo.com) and vice president of business development. Often, he added, developers end up building the same app for many different operating systems. "We provide a single authoring framework to allow developers to build it once and deploy to .NET, Java or Symbian." The solution also includes software for an enterprise J2EE server for handling client connections and communications.

Khare described the company's Smart Client as a 150KB application that presents user interface logic and communi-

cates with the main J2EE backend application.

Mobile apps can be created using the developer's existing tools, Khare said, with Covigo's development environment adding the finishing touches. "You can use Eclipse or JBuilder for the Java logic, and tools like Dreamweaver and GoLive for presentation logic and templates. Then they use Covigo Studio to import that logic and add business process and user-direction flow."

Smart Client .NET Edition is sold as part of the Covigo Mobility Suite for Enterprises, which Khare said typically costs about US\$100,000, including 1,000 client licenses, two developer seats and software to run on an existing J2EE server. ■

# Building Wireless-Aware Applications

BY JENNIFER DEJONG

**W**hat happens when you take an existing corporate application and deploy it across a wireless network?

If the connectivity is perfect, and if there's sufficient bandwidth, it will work.

But the minute you roam out of range with your notebook, the application will get confused. It may ask you to reauthenticate, give you a nasty error message or simply freeze up.

When that happens, said Dale Gonzalez, chief technology officer at Air2Web Inc., people say, "Wireless technology doesn't work." But in truth, he said, it's the application that's not fit for wireless—not the other way around.

As salespeople and other mobile workers rely increasingly on wireless networks to connect to servers housed in the home office, a new reality is becoming clear: Using notebook computers in a wireless environment is not just a matter of equipping them with wireless network interface cards.



**Deciding what data goes where is key, says Extended Systems' Krishnapillai.**

To meet the growing demand that corporate enterprise applications behave as well in a wireless environment as they do in a plugged-in state, you have to start with a clean slate, rethinking and rearchitecting the application itself, experts agree.

"You can't just take a connected application and pretend it's the right thing," said Scott Guthery, chief technology officer at Mobile-Mind Inc. ([www.mobile-mind.com](http://www.mobile-mind.com)), a company that develops consumer and vertical market enterprise

applications for a range of mobile devices and platforms. "You have to adapt the application to the available bandwidth."

Because notebooks are full-configuration computers, without the constraint on memory and storage inherent to smaller mobile devices, it's easy to assume that you don't need to do anything differently. "But as soon as you put a wireless card in a notebook, [from a developer's standpoint] it's no longer a notebook," said Air2Web's Gonzalez. "You have to think of it as a wireless device."



**Processes as well as data need to reside locally, says PeerDirect's Johnston.**

Air2Web's Mobile Internet Platform wirelessly enables back-end apps and corporate data across multiple networks, carriers and devices.

## OCCASIONALLY CONNECTED

Wireless carriers might beg to differ, but in reality, a wireless connection often means no connection at all. Recognizing that fact is central to creating "wireless-aware" applications.

You need to construct your application so that it does not depend on a connection, said Bill Jones, vice president of products at Synchrologic Inc., which has created a Mobile Suite for wireless access to corporate applications and data.

"It's a different way of thinking," said Jones. Instead of assuming that the network connection is a given, the application is designed around the expectation that the user is connected only occasionally.

To help developers adopt this new mindset, Mobile-Mind's Guthery com-

pared the concept of designing applications to take advantage of different types of connections—high-speed, medium-speed, low-speed or no connection at all—to the idea of architecting applications to take advantage of various types of memory. "Developers are accustomed to thinking that way," he said.

## MOVE DOWN THE DATA

Understanding that you can "no longer assume persistence in one session" governs how the application developer handles a whole host of issues, said Senthil Krishnapillai, senior technical product manager at Extended Systems, which sells mobile data and connectivity management products. One key decision is what data goes where. "You want to move as much data as possible to a local store," he said.

"Although the [wireless-aware] application can look the same as it would on a desktop, the underlying database is resident locally, instead of [residing on] a shared server," added Jones.

He emphasized the need to segment the data intelligently. "Let's say I am one of 100 salespeople. The entire sales database is 500MB, but the slice I need is 10MB. So I carry around 10MB on my notebook."

The dramatic increase in notebook storage technology over the past few years—the notion that an individual hard drive can hold a significant amount of business data—is a key driver in enabling companies to deploy enterprise applications wirelessly, said Britt Johnston, chief technology officer at PeerDirect Corp., which sells database replication and application replication products.

Johnston stressed that it's not just data



that needs to reside locally. To decrease dependence on the centralized server, you must provide users with the ability to carry out business processes locally. For example, a salesperson needs to be able to create a new account without having to connect to the server, he said.

## GETTING IN SYNC

Moving data down to the notebook is a step in the right direction. But at the heart of getting any corporate application to work well wirelessly is figuring out an effective way for wireless users to synchronize with the server at the home office. "In the wired world, you want to push as much data down the wire as you can," said Air2Web's Gonzalez. "But with wireless, you have to make the time spent using the network as short as possible."





## MOST PRODUCT OFFERINGS TARGET SYNCHRONIZATION

The majority of the mobile software offerings focus on implementing the synchronization process—the central piece that manages how the wireless application interacts with the central server. Some vendors also sell software geared to specific business functions, such as sales, and offer mobile management capabilities as well. Among the offerings:

### **Air2Web Inc.** ([www.air2web.com](http://www.air2web.com))

Air2Web's Mobile Internet Platform supports transactions, through an XML-based infrastructure, with any corporate data source, including EAI, ERP and CRM applications. You can license the software or engage Air2Web to host the application for you.

### **Extended Systems**

([www.extendedsystems.com](http://www.extendedsystems.com))

At the core of Extended Systems' mobile software offerings is the XTND-Connect Server, which interacts with mobile applications to transfer and receive data. It also sells Mobile Enterprise Applications, which includes business solutions, for sales, field service and pharmaceuticals.

### **iAnywhere Solutions Inc.**

([www.iAnywhere.com](http://www.iAnywhere.com))

Best known for SQLAnywhere Studio, which manages the data synchronization process, this Sybase subsidiary also offers the m-Business Platform,

which extends enterprise applications to mobile devices, including laptops.

### **Iona Technologies** ([www.iona.com](http://www.iona.com))

Iona's Java-based Mobile Orchestrator uses a Web services approach to enabling data transfer and managing the connection between mobile users and corporate data and applications.

### **NetMotionWireless Inc.**

([www.netmotionwireless.com](http://www.netmotionwireless.com))

NetMotion Mobility enables mobile users to maintain a wireless connection, holding the application in suspension, when they move between networks and coverage gaps. It also manages the authentication process.

### **PeerDirect Corp.** ([www.peerdirect.com](http://www.peerdirect.com))

PeerDirect's database replication and application replication products, including PeerDirect InnerEdge Server and PeerDirect OuterEdge Server, enable companies to distribute business applications across the enterprise, including wireless users.

### **Synchrologic Inc.**

([www.synchrologic.com](http://www.synchrologic.com))

Synchrologic's Mobile Suite is an integrated set of components designed to address all aspects of wireless applications, including synchronization and e-mail, as well as systems management of mobile devices and laptops.

—Jennifer deJong

separate record. But you don't want to do that with a wireless application. "The database purists will howl: 'You are duplicating data!' and, of course, they are right," said Gonzalez.

When the mobile user is connected, the application also needs to make the most of that connection, distributing only information that is highly relevant to that particular user, said Eric Newcomer, chief technology officer at Iona Technologies.

Among other products, Iona sells Mobile Orchestrator, which uses Web services to interact with occasionally connected users of enterprise applications.

One way to take advantage of the connection is to use the publish/subscribe model, where the server automatically downloads relevant data in the background. For instance, a salesperson would subscribe to all information on new products, said Newcomer, ensuring that his information is current when he calls on a customer.

### **STORE AND FORWARD**

Newcomer said that the most significant aspect of deploying corporate enterprise applications wirelessly is the change in the communication paradigm

used to synchronize with the server. "In the development world, people are used to RPC-oriented (Remote Procedure Call) technology," he said. But RPC presents significant hurdles for occasionally connected computing. "Instead of writing code to synchronize with the server, you use the store-and-forward model, which is a document-oriented interaction style," he said.

Microsoft sees that process—mobile applications exchanging documents with the server—as a return to the "smart client" and a move away from the Web browser, said Mike Kass, a product manager in Microsoft Corp.'s developer division.

"In the old scenario, you made a request to the server and the data is sent back as HTML," said Kass. But in the new model, you get the information back as an XML document, which the local application can open and display.

With the richer client, you are

The key is to minimize the amount of data that is exchanged, downloading or uploading only the data that has changed since the last time you connected, said Marty Mallick, wireless evangelist at iAnywhere Solutions Inc., a subsidiary of Sybase Inc. "In a wireless environment, you don't want to download [or upload] large amounts of data."

iAnywhere's m-Business Platform, which extends corporate applications to wireless devices, includes SQL Anywhere Studio, m-Business Studio, Manage Anywhere Studio and Mail Anywhere Studio.

Synchrologic's Jones referred to this minimal exchange of data as a "field-level capture," where only those fields that have changed—for example, the fax number in a customer record—are uploaded. "You have to work on a granular level," he said.

"You have to define transactions with the back end as granularly as possible, breaking down each message [which can be a transaction] into, say, 10 small packets," added Gonzalez.

The idea is that each packet represents a complete step in the synchronization process, and the next packet simply remains at the top of the queue until the user is able to connect again, he said.

To make that work, the data structure itself must be able to be packaged, said Gonzalez. Inevitably, because customer records for wired applications typically aren't designed to be read individually, that will mean duplicating some data.

For example, he explained, say you have a sales order that is associated with customer 7664. In order to determine that customer 7664 is Boeing Corp., you have to fetch the customer name from a



**Construct apps so they don't rely on a connection, says Synchrologic's Jones.**



## WIRELESS

◀ continued from page 21

essentially distributing part of the business process, added Newcomer.

### GETTING USERS TO BEHAVE

A wireless-aware application knows what its users are up

against and communicates with them accordingly. "It's important to show the mobile user some form of application status," said iAnywhere's Mallick.

For example, you can use a status bar to show how the synchronization process is progressing. Since wireless communication is typically slower,

you cannot simply rely on the user interface of a wired application to keep users informed. "In a wired environment, the hourglass is onscreen for, say, a few seconds," said Mallick. But in the wireless scenario, it might remain there as long as six minutes. The user would

probably shut down the application, he said.

Another issue to address: making sure that users can upload only critical information over a wireless connection. This is mostly a matter of keeping costs under control. "Do you want them e-mailing huge PowerPoint apps over a

CDPD network?" asked Shelly Julien, vice president of strategic communications at NetMotion Wireless Inc., whose NetMotion Mobility product enables wireless users to maintain connections and access to data when moving among different networks or between coverage gaps.

"Every byte you send is metered," added Extended Systems' Krishnapillai. He predicted that the unlimited-usage plans some carriers currently offer won't last. "They don't have unlimited wireless capacity."

### DEVELOPING BASED ON COST

Factoring communication costs into the equation is a new thing for developers to deal with, said Mobile-Mind's Guthery. To avoid users uploading non-critical data via a costly wireless connection, you can build a usage policy into the application, based on criteria, such as how much the line costs, he said.

The application needs to be able to determine what kind of connection the user is coming in on, said Mallick. "If it's wireless, [you can set a policy that says] only priority synchronization is allowed," he said. The application can display a message that says: "Please do a full synchronization back in the office." This will keep traffic from slowing down on the wireless connection and help to keep costs under control.

It also makes sense to defer activities, such as backups and software upgrades, until the user is in a high-bandwidth environment, said Krishnapillai, emphasizing that it is important for wireless applications to also incorporate mobile management capabilities.

What happens, though, when the business need is critical, but you can't get any connection at all? Say, for example, you are with a customer and you need access to current inventory data in order to close a sale. "The application should display the message: 'You are not connected, make a phone call,'" said PeerDirect's Johnston.

Alternatively, said Guthery, the application could send a text message to the user's cell phone. "The user is carrying multiple devices, and your application should be able to communicate with all of them," he said. ■

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## EDITORIALS

## The Process Is Working

There's no question that Sun controls the Java Community Process. Sun is the only vendor to have a veto; no Java Service Request can be approved without Sun's blessing. Membership in the Java Community Process takes the form of a contract between Sun and a prospective member; Sun has the right to choose to exclude anyone from the JCP. Further, Sun controls all Java trademark licensing.

A brief look through our business-card file confirms that Sun is in charge: Every JCP official, from chairman Rob Gingell to director Otto Kluyt, are Sun employees. It's assured that the JCP's actions will be 100 percent in sync with Sun's corporate goals.

Yet Sun has proven itself to be a reasonably benevolent dictator of the evolving process—almost a constitutional monarch.

While the company does have veto power, it can't force through changes to the Java tech specs—or to the Java Community Process itself—without approval by some of its harshest competitors. As evidenced by the recent failure of several Sun-sponsored initiatives, and by Sun's underwhelming share of the commercial Java software market, the process does appear to be working reasonably well. In other words, the only power Sun truly has is the power to say no.

Sun deserves credit for continuing to liberalize the Java Community Process. As big vendor consortia go, the JCP is remarkably open and transparent. It's not perfect, but its critics might do well to compare and contrast the JCP with, for example, the .NET Community Process.

## SCO Opera

SCO's claims that Linux violates its intellectual property rights, and that IBM has breached its Unix licensing terms, must be settled in the court of law. But SCO's tactic of fighting the battle in the court of public opinion is little short of bizarre.

The accusations and counteraccusations are flying faster than a bludger at a Quidditch match. But even Harry Potter has something to point his wand at: SCO's refusal to present any evidence to back up its claims—a single line of purloined source code, a single Linux usage of proprietary class libraries or architecture that only a Unix licensee would know about—is disturbing.

SCO has claimed that it can't release such details due to its pending lawsuit against IBM. How convenient. But in that case, shouldn't Darl McBride hold off in sending vaguely threatening letters to commercial Linux users for the same reason?

Perhaps SCO is right, that members of the Linux community have unfairly appropriated its intellectual property, and that IBM has violated its original AT&T Unix contract terms by redirecting sales away from Unix. Perhaps IBM is right in its response that the lawsuit is frivolous. Perhaps Novell is right in its rebuttal that it, not SCO, actually owns the Unix patents and copyrights.

Ultimately, that's for the courts of law to decide.

But without providing any clear evidence to substantiate its claims, SCO will lose in the court of public opinion long before any judge bangs the gavel. ■

## GUEST VIEW

## SECURITY REQUIRES QUALITY COMPONENTS

Everyone is worried about security these days, but problems with software security, both corporate and national, may be the best things that ever happened to software engineering, according to Bertrand Meyer, a keynote speaker at the recent International Conference in Software Engineering, held in Portland, Ore., in early May. The search for security may be just the incentive needed for the industry to finally produce the quality of core components required for successful component-based development on a broad scale.

Software managers may have been in the minority among the 600-odd educators, researchers, students and practitioners gathered in Portland for the 25th ICSE, but the conference, with its focus on the foundations and frontiers of software engineering practice, was solidly anchored

in real-world economics and practical trade-offs. Indeed, the industry hot buttons of security, component-based development and software quality highlighted in Meyer's keynote were recurrent subtexts throughout many presentations at ICSE 2003.

Meyer, a professor of software engineering at ETH (Swiss Federal Institute of Technology), may be best known as the inventor of the Eiffel object-oriented programming language. He argued that the increasing drain on resources from worms, viruses and Trojan horses combined with the threat of software terrorism provide sufficiently strong economic justification for building better reusable components out of which stable, secure, dependable software can be constructed. Meyer admitted to a certain amount of *Schadenfreude* at the

prospect that security threats may finally redeem programming practices that have long been undervalued and underutilized.

## SCALING UP

"Reuse scales up everything," Meyer said, including inefficiencies and the risks arising from deficient design. Bad basic components become a major business risk. With reusable components, the economics change because the cost of guaranteed security and stability is spread over many applications, justifying obsessive attention to detail and highly systematic construction methods needed to construct quality components.

Of course, developers and managers on the ground have been hearing the reuse drums beaten without rest for at least the past decade, with increas-

LARRY  
CONSTANTINE

## LETTERS TO THE EDITOR

## UBL BRINGS HARMONY

Your article ["OASIS Proposes Standard for Business Documents," May 15, page 1, or at [www.sdtimes.com/news/078/story3.htm](http://www.sdtimes.com/news/078/story3.htm)] misses the point.

The value of UBL is not in the collection of horizontal documents such as order and invoice. The value is in the naming and design rules methodology that is harmonized with UN/CEFACT core components. OAG, xCBL, RosettaNet and many other horizontal and vertical standards are also moving toward harmonization of core components.

The difficulty in cross-industry collaboration is not whether the document is this format or that (syntax issue)—the real problem is in the meaning of the content (semantic issue). Harmonization of semantics through efforts such as UN/CEFACT core components (and the W3C "semantic web" for that matter) is the key to interoperability. UBL provides by far the best example of a message construction methodology that leads to improved semantic interoperability.

If all the different industry standards kept their libraries of

business messages but used the UBL naming and design rules as a "reference implementation" as they move toward harmonisation of the components (building blocks such as an [address] element), then UBL will have been an outstanding success.

Steve Capell

RedWahoo

Sydney, Australia

I have read your article "OASIS Proposes Standard for Business Documents," and I have found it disgusting. You claim that Esperanto is "a language invented for cross-cultural communication that never has gained wide adoption." That isn't true: There are people all over the world speaking Esperanto, even as a mother language (they are called "denaska"). Also, the European Community is considering the adoption of Esperanto, or other conlang, as a neutral language.

Anyway, ebXML is a language for computers, not for people: You cannot pronounce something like this: `<bean:write name="user" property="name"/>`.

Please verify your sources and retract your statement.

Jose Manuel Garcia Rivas

I am an Esperantist living in Harare, Zimbabwe, where we have an Esperanto club. I happened to visit your Web site at the link [www.sdtimes.com/news/078/story3.htm](http://www.sdtimes.com/news/078/story3.htm) and was delighted about the story.

I am writing to inform you that even in Africa, Esperanto is now being used as a language for communication among the Esperantists.

One of our members recently visited Ghana where he went to attend a two-week workshop, and even there he could still use Esperanto with the Esperantists he met.

That was not a surprise for him because Esperanto is not as dead as non-Esperantists believe. We use it on a daily basis on the Internet and in our local club or at different meetings and gatherings.

The number of students in our local club is increasing, which is another fact that proves that Esperanto is alive.

Of course obstacles are there, such as poverty in Africa and a lack of sufficient funds, but we believe that one day, with the collaboration of organizations such as SD Times and others, Esperanto will be among the leading international languages.

Kapinga Ntumba



ing emphasis on component technologies—such as COM, CORBA, J2EE and .NET—but little attention to the quality of components built using these technologies.

Meyer thinks the times may be changing. For one thing, we have well-proven software engineering techniques for creating robust reusable components with predictable performance and guaranteed reliability.

Indeed, many of the failures with reusable objects and component-based development can be traced to a failure to use available approaches as well as to a lack of willingness on the part of management to make the upfront investment needed to produce good components. The economics shift when security becomes a driving concern. Companies will invest in security where they would not invest in reducing bugs.

Microsoft's Trustworthy Computing initiative, with its focus on security, might be considered a case in point. Service Packs are touted as fixes for security problems, not correc-

tions of bugs.

In a 1995 interview (www.cantrip.org/nobugs.html), for example, Bill Gates set the record straight, explaining that the rationale for new releases and updates "is not to fix bugs. ...[In] no sense is stability a reason to move to a new version." Perhaps Gates was right. Managers who tolerate tremendous day-to-day inefficiencies from bug-ridden system and application software are moved to take action when corporate security is threatened.

The bottom line is that many security problems are relatively easily overcome with better attention to basic programming practice. As Meyer pointed out, most current attacks exploit buffer overflow or other trivial issues that are readily solved with more disciplined programming.

#### WE HAVE THE TECHNOLOGY

Meyer highlighted an array of proven technologies and techniques, including the design-by-contract approach he pioneered. He sees a number of

contemporary practices with real potential payoff in the search for security and stability. He cited the open-source movement for releasing a tremendous surge of energy and enthusiasm, but questioned one of its central tenets—that enough eyes on the code guarantees quality.

Meyer praised Extreme Programming for having "rehabilitated the act of programming" and for its emphasis on prevention and early elimination of defects, but questioned whether all its prescriptions were equally useful. He particularly challenged the notion of tests as specifications and told of a company that ended up having to pay for contracted software that passed all 15 tests stipulated in the contract—yet did little else.

Meyer also drew attention to progress in formal methods. Long regarded as only of academic interest, approaches such as Abstract State Machines or B are becoming more practical and more readily scaled up, although they remain relatively expensive.

#### FORMULA 1

In Meyer's view, component design should become the "Formula 1 racing" of software engineering, a discipline within which perfectionism is seen as a virtue and "good enough" software is recognized as not good enough.

Component-based development, properly practiced, offers software developers the potential of guaranteed quality, faster time-to-market, ease of maintenance, standardized programming practices, and the preservation of hard-won know-how.

He outlined both a "low road" to core components based on certified quality, and a "high road" built on formal methods and proofs of correctness, with the high road most needed—and most economically practical—in operating systems and other core software. We all can hope the software vendors get the message. ■

*Computer-usability expert Larry Constantine is chief scientist at Constantine & Lockwood Ltd.*

#### STOP THE WHINING

This is my first time writing, and I wanted to apologize for it being a negative comment. I have read SD Times for a little over a year now and seen the "Microsoft vs. the world" theme in the Java Watch column. I honestly and truly believe in open competition and freedom of choice for the consumer. I also appreciate that every time another company does something great, Microsoft has to either match it or beat it. This could be from anything from the Macintosh OS to Java language.

However, I grow tired of the Java camps whining about the JVM and especially Microsoft's JVM. In his column ["Dump Microsoft's JVM" May 15, page 31, or at www.sdtimes.com/cols/javawatch\_078.htm], Steven J. Vaughan-Nichols states that Microsoft did not initially ship a Java JVM and then they shipped an outdated one. He writes, "Isn't it time to stop Microsoft from getting away with this?"

What exactly are they getting away with? If I could either go to the grocery store that was really close and the fruit was 12 days old and cheap, or drive across town and get freshly picked fruit,

what would I do? It depends. I have a choice, and so do consumers. As a user of HP's Insight Manager, it prompts me to install Sun's JVM. I do, and I move on. That is a choice I make. Each consumer can go to Sun's Web site and download the newest JVM if they—and here is the key word—*want*. Is it a burden to download it over a 56kbps connection? Probably. But if they want it bad enough, there it is. It may be inconvenient, but it is not impossible to get at.

Steven should concentrate on stating the benefits of taking that inconvenient road. His article points out the huge security holes in Microsoft's version. It's not safe to use. It's kind of like buying an old car without airbags and seatbelts. (Note: You can still buy it if you wish—again, consumer choice).

By the way, HP does exactly what he says: You are prompted to install the newer JVM to use Insight Manager. So yes, if I buy a program written in Java and need to update my JVM, so be it. That's a condition of running the program, just like running VB6 apps required installing the VB runtime.

Steven should stop insulting our intelligence. I grow weary

of all these claims of how hard it is to get a Java VM and how bad Microsoft is by not writing a new one. Why should they waste their time writing what the creators of Java already have as a free download?

**David W. Steyer**

The Java community should have taken the actions suggested at the end of Steven J. Vaughan-Nichols' "Dump Microsoft's JVM" column years ago.

Upgrade detection and distribution via CD or Web is a simple process every vendor seems to have mastered 6-10 years ago, including games manufacturers. No other vendor group expects Microsoft to do product update detection and distribution for them. Nor, as far as I know, has there ever been a problem installing Sun's JVM onto Microsoft operating systems due to Microsoft products. Unlike some silly federal courts, I can't believe anyone could reasonably hold the view that Microsoft is failing in its responsibility to distribute Sun's latest software. In a sane world, it simply isn't Microsoft's duty to market and distribute Sun's products just because Sun seems incompetent in that area. It is time for Java to stand on its own two feet. I am

glad to see the Java community realizing that Microsoft is *not* an essential part of the distribution chain for Java.

**Clay Falter**

LAN Administrator  
Streck Laboratories

#### CORRECTIONS

CollabNet Inc.'s SourceCast is a collaborative software development tool. It is not open source. A description of the tool was incorrect in the June 1 issue's SD Times 100 awards.

QNX Momentics, a bundling of the company's Neutrino real-time operating system and development tools, was misspelled in the SD Times 100 awards that appeared in the June 1 issue.

#### WHAT DO YOU THINK?

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#### Publisher

Ted Bahr

+1-516-922-2101 x101 • [ted@bzmedia.com](mailto:ted@bzmedia.com)

#### Editor-in-Chief

Alan Zeichick

+1-650-359-4763 • [alan@bzmedia.com](mailto:alan@bzmedia.com)

#### Executive Editor

David Rubinstein

+1-516-922-2101 x105 • [drubinstein@bzmedia.com](mailto:drubinstein@bzmedia.com)

#### Senior News Editor

Edward J. Correia

+1-516-922-2101 x100 • [ecorreia@bzmedia.com](mailto:ecorreia@bzmedia.com)

#### Associate News Editor

Yvonne L. Lee

+1-408-737-1153 • [yilee@bzmedia.com](mailto:yilee@bzmedia.com)

#### Copy Chief

Patricia Sarica

+1-516-922-2101 x106 • [psarica@bzmedia.com](mailto:psarica@bzmedia.com)

#### Art Director

Mara Leonardi

+1-516-922-2101 x109 • [mleonardi@bzmedia.com](mailto:mleonardi@bzmedia.com)

#### Columnists

Andrew Binstock

[abinstock@pacificdataworks.com](mailto:abinstock@pacificdataworks.com)

Larry O'Brien

[larryo@thinkingin.net](mailto:larryo@thinkingin.net)

Steven J. Vaughan-Nichols

[sjvn@cna1.com](mailto:sjvn@cna1.com)

#### Contributing Writers

Alyson Behr

[alyson@behrcomm.com](mailto:alyson@behrcomm.com)

Jennifer deJong

[jdejong@vermontel.net](mailto:jdejong@vermontel.net)

Lisa Morgan

[lismorgan@mindspring.com](mailto:lismorgan@mindspring.com)

Oliver Rist

[orist@fb2corp.com](mailto:orist@fb2corp.com)

Esther Schindler

[esther@bitranch.com](mailto:esther@bitranch.com)

#### Advertising Sales Representatives

##### Southwest U.S.

Julie Fountain

+1-831-476-1716 • [jfountain@bzmedia.com](mailto:jfountain@bzmedia.com)

##### Northeast/North Central U.S./Canada

David Karp

+1-516-922-5253 • [dkarp@bzmedia.com](mailto:dkarp@bzmedia.com)

##### Northwest U.S./Canada

Paula F. Miller

+1-925-831-3803 • [pfmiller@bzmedia.com](mailto:pfmiller@bzmedia.com)

##### Southeast U.S./Europe

Jonathan Sawyer

+1-603-924-4489 • [jsawyer@bzmedia.com](mailto:jsawyer@bzmedia.com)

#### Director of Circulation & Manufacturing

Rebecca Pappas

+1-516-922-1818 • [rpappas@bzmedia.com](mailto:rpappas@bzmedia.com)

#### Circulation Assistant

Phyllis Oakes

+1-516-922-2287 • [poakes@bzmedia.com](mailto:poakes@bzmedia.com)

#### Office Manager/Marketing

Cathy Zimmermann

+1-516-922-2101 x108 • [czimmermann@bzmedia.com](mailto:czimmermann@bzmedia.com)

#### Customer Service/Subscriptions

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## BZ Media

BZ Media LLC

2 East Main Street

Oyster Bay, NY 11771

+1-516-922-2101 • fax +1-516-922-1822

[www.bzmedia.com](http://www.bzmedia.com) • [info@bzmedia.com](mailto:info@bzmedia.com)

#### President

Ted Bahr

#### Executive Vice President

Alan Zeichick

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**Novell to SCO: Put Up or Shut Up About Unix**

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**TeamShare Acquisition Moves Serena Into Process**

Strategy behind \$18 million purchase is to 'manage change where it occurs'

**SUN MOVES TO OPEN UP, STREAMLINE JAVA PROCESS**

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[www.sdtimes.com](http://www.sdtimes.com)

David Karp  
Northeast/Central  
516-922-5253  
dkarp@bzmedia.com

Jonathan Sawyer  
Southeast/Europe  
603-924-4489  
jsawyer@bzmedia.com

Julie Fountain  
Southwest  
831-476-1716  
jfountain@bzmedia.com

Paula F. Miller  
Northwest  
925-831-3803  
pmiller@bzmedia.com

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## MOBILITY MIDDLEWARE

While IT spending continues to languish, pockets of technology are actively enjoying increased investment. The most evident hot spot is wireless connectivity. Wi-Fi is quickly becoming an integral part of client-side endpoints. Intel's Centrino platform includes 802.11b connectivity. And Centrino's energy-miser processor, the Pentium M, will push this wireless technology into most new notebooks. High-end PDAs also come with built-in Wi-Fi capability.

So much is happening that customers are already restless with the performance limitations of 802.11b and are anxious to get hot spots moved to 802.11a or 802.11g. Which standard will win out is very much an open question, although 11g appears to have momentum. Both 11a and 11g offer the same 54Mbit/sec bandwidth, but 11g is backward-compatible with 11b as both versions use the same protocols and 2.4GHz radio band. The 11a spec runs at 5GHz, which does offer some advantages: It avoids the problems of interference from Bluetooth and cordless phones, which also run at 2.4GHz. In addition, 11a's spectrum supports 12 non-overlapping channels, whereas 11b supports only three—which could have scalability implications for the enterprise. But 11g's crucial compatibility with

11b suggests that hot spots may favor it. While the hardware advances push wireless technology out to clients, only scant software to accommodate a client's needs has yet appeared. As I explained back in my column of March 1 ("Design With Mobile Problems in Mind," page 31, or at [www.sdtimes.com/cols/middle\\_watch\\_073.htm](http://www.sdtimes.com/cols/middle_watch_073.htm)), Wi-Fi presents several key challenges due to intermittent connectivity: preserving state, syncing data and transactions at reconnect, handling user actions arising from disconnects, and, of course, security.

One of the first companies to attempt to provide a solution was Kenamea, a firm co-founded by Bob Pasker, the architect who designed the WebLogic application server. Pasker's vision was a message-passing server that spoke to a small applet on the client endpoint. This communication transparently handled application communication issues such as syncing after disconnects, security and so forth. However, Pasker cut back his participation in Kenamea, and the company is positioning itself as a provider of Web services and messaging solutions, rather than focusing specifically on the needs of mobile client endpoints.

A company addressing the unique

problems of wireless connectivity head-on is Nexaweb Technologies in Cambridge, Mass. Its software manages application-level communication between client and server. It handles the problem of re-syncing after a disconnect via message queues, de-duplicating repeated messages (such as when a PDA user keeps clicking on "Send" unaware the Wi-Fi connection is down), and pushing selected information to the client. This last capability enables applications to

automatically update a client screen, without forcing the user to poll the server. This capability is particularly important in commercial applications, such as Nexaweb's installation at the Starwood Hotel chain, where it's used on roving PDAs to handle customer requests and complaints. Its fundamental operation is done through constant syncing between a client side applet and a Java servlet that resides on any J2EE platform. The client endpoint needs only a standard browser to work. When the client logs in to the application, it automatically downloads a 130KB applet, if it doesn't already have it installed. This applet manages the application security, data transfers and synchronization.

One of Nexaweb's nifty innovations is how it implements a key principle of occasionally connected computing, namely that solutions must scale up or

down to fit the endpoint capabilities. Nexaweb ascertains endpoint capability at start-up. The more robust the client hardware, the more functionality it pushes on to the client. PDAs perform less work locally than Pentium 4-based notebooks. Whatever functionality is not pushed to the client is performed by the server. And the server keeps track of what functionality exists at each endpoint. The result is that client interaction is always responsive. At its lowest bandwidth level, Nexaweb simply sends a message (in XML) to the client saying it needs to update a data item.

The client applet runs on any Java runtime since the prehistoric 1.1.4, and it supports XUL, XForms and SVG, in addition to XML. XUL (pronounced *zool*) is a standardized means of describing user interface layouts with an XML-style syntax; XForms is a W3C specification for dynamic Web forms; and SVG, of course, is the standard for images.

Kenamea and Nexaweb are pioneers today. But as wireless Ethernet connectivity becomes pervasive, platform-agnostic mobility middleware that can scale with the endpoint and handle most of the application issues seamlessly will become increasingly important and common. Expect to see more of it in the future. ■

*Andrew Binstock is the principal analyst at Pacific Data Works LLC.*

### MIDDLEWARE WATCH



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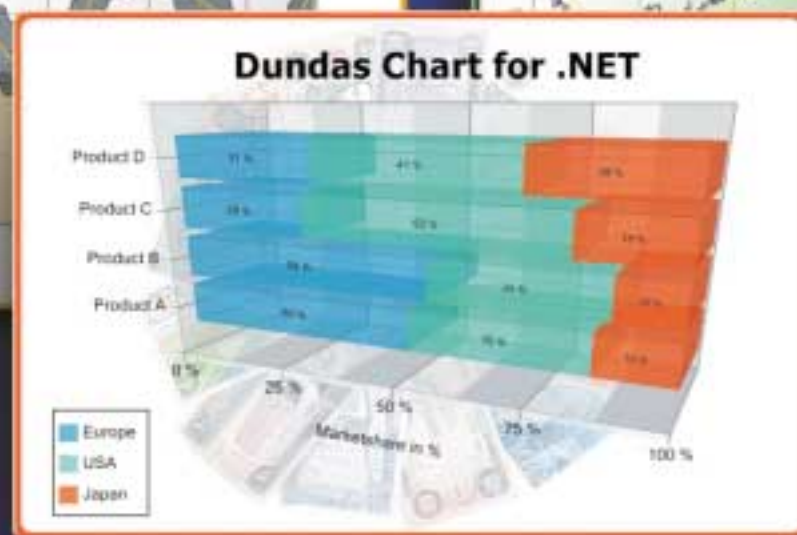
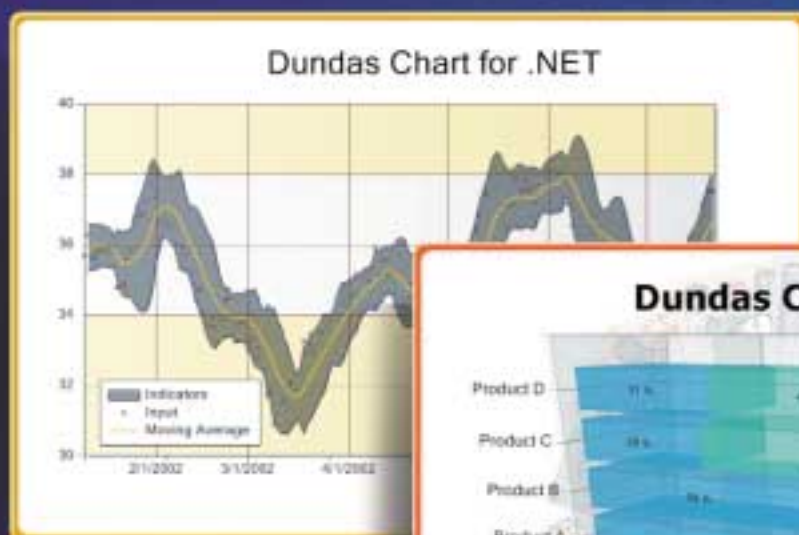
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## SUMMER READING, .NET STYLE

Ah, summer. That joyous season of lemonade, suntan lotion and reading lists. With the .NET Framework maturing steadily and Windows Server 2003 shipping, it's an excellent time to increase the depth of your understanding of these milestone products, and what more enjoyable way to do so than by lugging a few dozen pounds of bound paper to the beach?

There are several books whose quality distinguishes them from the pack and certainly are worth your attention. A prime example is Fritz Onion's "Essential ASP.NET." There are actually two books with this title: one with examples in C# and one with examples in VB.NET.

Amazingly, these books are identical outside of the code listings. This is an eloquent testimony to the capabilities of .NET's Common Language Runtime; one's preferred language no longer channels one into a particular type of application development; rather, the unified concepts and techniques allow programmers to tackle any type of development in which they're interested. Conversely, it allows excellent writing such as Onion's to find the largest possible audience.

The first 32 pages of "Essential ASP.NET" are the clearest explanation of ASP.NET's architecture that I've read; it allowed me to clear my bookshelves of a couple of hefty competitors

on that basis alone. It's become evident that many people are moving to ASP.NET without understanding its elegant architecture or even the object-oriented structure of "code behind."

ASP.NET is an enormous improvement upon ASP and architecturally leapfrogs competitive server-pages technologies, but only if people use it as more than "ASP with objects." Onion's book covers the architecture thoroughly and concisely (the book is a relatively slim 400 pages). Web Forms, configuration, validation and data binding are the predictable fundamentals, but Onion also gives good coverage to such topics as diagnostics and debugging, writing custom controls, security, the HTTP pipeline and caching.

Not only is "Essential ASP.NET with examples in C#" so good that it's the only ASP.NET book on my working bookshelf, it's so good that "Essential ASP.NET with examples in Visual Basic" is the only ASP.NET book on my secondary reference bookshelf in the garage!

Onion's book is from Addison-Wesley's .NET Development series, which is being edited by the trustworthy Martin Heller. The series is shaping up well, with Shawn Wildermuth's "Pragmatic ADO.NET" and Don Box and Chris Sells' "Essential .NET" also being stand-

out works. Books in the series have white covers with a checkerboard background and should be among the first you pluck from the shelf when looking for an answer.

Another series on .NET development that is shaping up with consistently high quality comprises the books with the orange-and-black covers from Microsoft Press. Jeffrey Richter's "Applied .NET Framework Programming" is the most value-laden book on the platform to date: It is filled with accurate and concise explanations of such important topics as shared assemblies, garbage collection and AppDomains.

You don't turn to Richter to understand "Hello, World." You turn to Richter for sections that begin with lines like "If a client makes a request of the server and the server code throws an exception, the exception can be marshaled back to the client and rethrown in the client's thread."

Regular readers of this column know that I believe the great opportunities of the next decade lie in developing software for mobile devices: phones, PDAs and Tablet PCs. If you're interested in these areas, Microsoft Press is going to be just about your only choice for a reference book, but the good news is that both "Microsoft .NET Compact Framework Core Reference" by Andy Wigley and Stephen Wheelwright and "Building Tablet PC Applications" by Rob Jarrett and Philip Su go beyond the SDK

documentation and provide real insight into the challenges of developing mobile software.

In particular, the Wigley and Wheelwright book has an excellent chapter on interacting with native code that will certainly justify in time savings the purchase price of the book and more—it's one of the few technical discussions I've read recently that vastly outstrips what can be Googled, not just in consistency of tone and presentation, but at the technical level.

Moving beyond .NET-specific titles, if you haven't read Martin Fowler's "Patterns of Enterprise Application Architecture" or Kent Beck's "Test-Driven Development," I urge you to do so. These are my two favorite books of 2002. Fowler's book serves as a pragmatic pattern catalog, complete with trade-offs and implementation examples (albeit mostly in Java), while the value of Beck's book is that it is essentially a tutorial in test-first programming, the most important contribution to programmer productivity in years.

Finally, for that day or two when you allow your mind to drift, just for a moment, from things technical, check out Carl Hiaasen's "Basket Case," now available in paperback. Well, anything by Carl Hiaasen, actually. The guy's a hoot. ■

*Larry O'Brien is an independent technology consultant and analyst, and the founding editor of Software Development Magazine.*

### WINDOWS & .NET WATCH



LARRY O'BRIEN

## A JAVA ONE FOCUS

Sun Microsystems Inc. and conference producer Key3Media Group Inc. tell me that mid-June's JavaOne was to have three themes: innovation, Web services and mobility. OK, fair enough.

First innovation, if I may take up a purely technical cause for a moment. I know they're old-fashioned, and if James Gosling had really, really wanted them in Java, we'd have them, but on behalf of developers everywhere, could we please, please have user-defined enumerated types—enums—in Java?

Enums are used to "enumerate" all possible values for an enum variable. For example, the enum "month" might have the values of Jan, Feb, Mar and so on. It can really make programming, as C++ developers can attest, much easier. But, enums aren't in Java, and the two most popular workarounds both have problems. Technical issues may not matter to you as a manager, but the bottom line is that Java programming would go a bit faster with fewer problems if only the language had enums in its bag of tricks.

Speaking of innovation, could we finally get some honest agreement on Eclipse? Forget about the politics of who really controls Java. Forget about the politics of Java controlling everything in its environment. It makes perfect sense to me to let

Java use native graphic interfaces to boost performance. Language purity is all well and good, but no one is forcing developers to use Eclipse. Sun: Adopt SWT as a legitimate alternative to AWT and Swing, and let's move on, shall we?

And here's another "innovation" I'd like to see at JavaOne: Would Sun, BEA, IBM and everyone else not spend quite so much time sniping at each other? Wouldn't it be nice if the focus of JavaOne were on Java instead of who's No. 1?

It would help if Sun put a little more focus on Java at the show, rather than on its own solutions. Sun, once you get right down to it, is a hardware company. It makes its money from server sales, not operating systems, and certainly not from Java. It doesn't have to be that way. BEA is the living proof that a company can focus just on Java and do extremely well for itself.

Mind you, Sun has done some things right recently. Take Jini, for example. Sun was set to release a major upgrade at JavaOne to Jini networking technology with the Jini Starter Kit 2.0. It will include an improved security model, a new implementation of Remote Method Invocation (RMI), named Jini Extensible

Remote Invocation (JERI), new service discovery protocols and a whole lot more.

What's more important, though, is that this radical overhaul is designed for two purposes. The first is to make Jini work better with XML-based Web services. The second is to turn Jini from its stumbling beginning as a wireless, plug-and-play management framework for mobile devices into more of a business-oriented system. While I don't have enough details to say exactly where Jini is going, it certainly looks to me like after JavaOne it will show much more promise in enterprise and business programming than it has before.

If nothing else, the mobile wireless market that Jini was targeting is finally growing. In fact, it's growing by leaps and bounds.

Two years ago when Nokia President Pekka Ala-Pietila told a JavaOne audience that Nokia was going to combine cell phones and personal digital assistants, aka smartphones, the reaction was, at best, lukewarm.

Things have heated up since then. Last quarter, Ross Sealfon, IDC's research analyst for its smart handheld devices program, reported that smartphones are taking off, with worldwide first-quarter 2003 shipments growing by more than 400 percent to 1.71 million units. That's a lot of

devices in dire need of programming. Still have doubts? As you walk around the floor, notice just how many mobile vendors like Siemens Mobile and Nextel are around? They're not there to enjoy San Francisco; they're there to do business.

They know that Java is well-placed to make business happen. While C++ is a leading contender in the mobile space, Java also has a strong presence. Heck, I've found developers who use J2ME, PersonalJava and JavaPhone on Microsoft's Smartphone operating system, where Java has no official support whatsoever.

Whether you were at the show or not, it's time to give serious thought to developing Java applications for the mobile market. OK, so Java on desktops never took off the way many hoped it would. But it's beginning to look to me like smartphones are going to be an important and lucrative market, and not just a niche market, for Java developers.

If you were at JavaOne, I hope you took a long hard look at possible mobile customers and at ISVs who can help you win those customers. I also hope you spent some time kicking Jini's wheels. It may just be a compelling way to coordinate Web services over the network. ■

*Steven J. Vaughan-Nichols is editor of Practical Technology (www.practical-tech.com) and has worked as a programmer for NASA and the Dept. of Defense.*

### JAVA WATCH



STEVEN J. VAUGHAN-NICHOLS

## MERCURY'S ON THE RISE

The movement within the software industry over the past two years can be defined in three words: up the stack.

Companies that sold point solutions thought they needed to expand into broader areas by moving up the stack. Thus, Java application server vendors became development tools purveyors as well; integration tools vendors embraced Web services as a deployment mechanism; configuration management vendors saw the need to move into business processes and project management.

For some (BEA, Borland), the move went well, as revenues and market shares increased. Others (Allaire, Bluestone, SilverStream) simply disappeared.

One, Mercury Interactive Corp., had quietly been expanding from its core base of testing and performance tools through strategic partnerships with vendors in the defect-tracking and business rules management markets. If anyone wondered whether Mercury too was headed "up the stack," last month's acquisition of J2EE diagnostics tool vendor Performant, coupled with its Optane and Business Technology Optimization (BTO) initiatives, spoke volumes about where Mercury is headed.

"We're extending from QA to professional services, helping companies get a handle on their key initiatives," explained Jim Hare, Mercury's director of technology alliances. "A lot revolves around total cost of ownership."

Mercury seems well-positioned to move beyond its traditional area. In two years, the company amassed a huge sum of cash on hand as revenues have grown from US\$187.7 million in 1999 to \$400.1 million in 2002. Some \$18 million of that went to acquire Performant, and, according to Meta Group program

director Glenn O'Donnell, "it won't be their last acquisition."

Mercury "is one of the great success stories in our industry," O'Donnell continued. "They've done a great job of extending their traditional testing product line, and the application performance management piece has been doing very well."

The company's goal, according to Gartner Inc. analyst Theresa Lanowitz, is to integrate the testing and performance management products into its larger vision of BTO. To that end, Mercury has been in overdrive.

Optane is the first step. There are new solutions for application delivery, which combine Mercury's erstwhile LoadRunner, TestDirector and QuickTest tools

with new ProTune Delivery Services acquired from Performant; and for application management, which tie Mercury's Topaz to the Performant technology. While it appears to be not much more than a rebundling and rebranding of existing tools, Hare explained that the key new feature is what Mercury calls a shared technology foundation, which provides customers with the ability to use the same test scripts and monitors both in testing and in production. Also, Hare said the Performant trace technology, which tracks every event in the system—thereby catching problems that sampling and aggregation approaches would miss—can set Mercury apart by allowing testers to catch synchronization issues, deadlock conditions and other seemingly randomly recurring problems.

With Performant's technology, Hare said users can make their own instrumentation choices to determine the trade-off between deep visibility and performance overhead. Also, different roles and views of metrics can be displayed in the single

product. "IT executives, systems guys, application support guys all can get the views they need from the same product. It decreases the time for problem resolution—what we call a rapid triage. Which tier is it in? Who do I call in to solve the problem?" It enables an efficient collaboration between teams, because everyone looks at the same metrics and has the same view into the application stack."

This plays right into Mercury's plans for BTO. The strategy is to show companies the importance of monitoring business requirements throughout the application life cycle. "In a J2EE environment, [users] can trace individual business processes as they cross the app server and break down the time spent in layers and components. For example, you could see that it took 50 milliseconds to execute a purchase checkout. But that turns out to be 50 percent of the transaction time. This gives you the business context to help you prioritize performance work."

According to O'Donnell, Mercury had been more subtle about expanding its place in the IT universe, recently joining forces with key partners such as Telelogic, for requirements management, and Serena, for configuration management. There is, however, nothing subtle about BTO, he said.

"It's the sexy place to be to demonstrate value [of IT] to the business side," he said. "There are a lot of similar initiatives, and many vendors are moving toward this." In fact, TIBCO and ILOG, to name but two, also are staking a claim in this growing market.

"It's purely an economic thing" for businesses, O'Donnell said. "The business people are saying, 'We spent a lot of money on you guys. What are we getting for it?' If the IT organization can't defend it, they can't justify a budget. That's how it should be."

David Rubinstein is executive editor of SD Times.

### INDUSTRY WATCH



DAVID RUBINSTEIN

### BUSINESS BRIEFS

After changes in its executive team, **Iona Technologies Corp.** last month cut its staff by 32 percent, reducing the number of employees from about 600 to about 400 worldwide, according to a spokesman. The cuts, designed to help restore profitability, come as the company reassesses where it has been playing in the software market and where it wants to be, the spokesman said. . . . **Intalio Inc.** has closed a US\$5 million round of funding to expand its sales and marketing programs to promote the company's business process management system. Intalio is on the OASIS technical committee that is working to standardize the Business Process Execution Language. . . . **Merant Inc.** reported a decline in fiscal-year 2003 revenues from the prior year, but showed a return to profitability. For 2003, Merant reported revenues of US\$122.1 million, down from \$124.7 million in 2002. But profits in 2003 rose to \$4.2 million, up from a loss of \$18 million posted a year ago. For the fourth quarter of 2003, the company reported earnings of \$2.3 million, up from \$1.4 million in the third quarter and a big increase over the loss of \$4.9 million reported in the fourth quarter of 2002.

. . . **Computer Associates International Inc.** reported fourth-quarter 2003 revenues of US\$801 million, up 4 percent from 2002, but net loss for the quarter was \$106 million, or 18 cents per diluted share. This compares with a net loss of \$238 million, or 41 cents per diluted share, for the same period a year ago. For the year, the company reported revenues of \$3.11 billion, an increase over 2002's revenues of \$2.96 billion. It reported a net loss of \$267 million for the year, down from a loss of \$1.1 billion in 2002. Also, CA has announced it is forming **CA Technology Services**, combining its presales technical and professional services organizations. ■

### CALENDAR OF EVENTS

**CeBIT America** June 18-20

New York  
HANNOVER FAIRS USA  
[www.cebit-america.com](http://www.cebit-america.com)

**Worldwide Developers Conference** June 23-27

San Francisco  
APPLE COMPUTER INC.  
<http://developer.apple.com/wwdc>

**TheServerSide Symposium** June 27-29

Wakefield, Mass.  
THESEVERSIDE.COM  
[www.theserverside.com/symposium](http://www.theserverside.com/symposium)

**Open Source Convention** July 7-11

Portland, Ore.  
O'REILLY & ASSOCIATES INC.  
<http://conferences.oreillynet.com/os2003>

**Macworld Expo** July 14-18

New York  
IDG WORLD EXPO  
[www.macworldexpo.com](http://www.macworldexpo.com)

**VSLive** July 28-31

New York  
FAWCETTE TECHNICAL PUBLICATIONS  
[www.vslive.com/2003/ny](http://www.vslive.com/2003/ny)

For a more complete calendar of U.S. software development events, see [www.bzmedia.com/calendar](http://www.bzmedia.com/calendar).

Information is subject to change. Send news about upcoming events to [events@bzmedia.com](mailto:events@bzmedia.com).

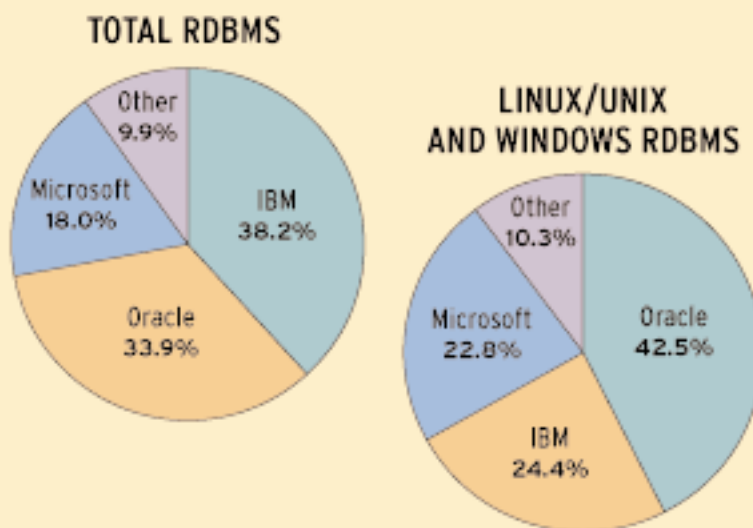
## IBM, Oracle Lead Shrinking RDBMS Market

### DATA WATCH

The 2002 worldwide relational database management system (RDBMS) market declined 7 percent compared with 2001, according to a recent Gartner Inc. study that looked at new license revenue on Linux/Unix, Windows, mainframes and other high-end platforms.

Three large software vendors, IBM, Oracle and Microsoft, continue to hold most of the market share in three major RDBMS software segments. IBM captured the largest market share in the total RDBMS segment, while Oracle maintained its lead in market share in the total Windows and Linux/Unix RDBMS segment.

The research also showed that sales of the former Informix RDBMS products declined by 33 percent overall, which Gartner believes may reflect IBM's plan to encourage Informix customers to migrate to DB2.



Source: Gartner Dataquest, May 2003. [www.gartner.com](http://www.gartner.com)





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